

# **Yamnuska: An Introductory Study for the Protection of the Area.**

1974  
Bow Valley Naturalists

# YAMNUSKA

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The Yamnuska

“Recommendation:

That the Yamnuska Natural Area be established as a provincial park, with simple facilities and a nature centre oriented to its use as part of an outdoor education program.”

From Report and Recommendations; Land  
Use and Resource Development in the  
Eastern Slopes: Alberta Environment  
Conservation Authority.

September 1974, page 134.

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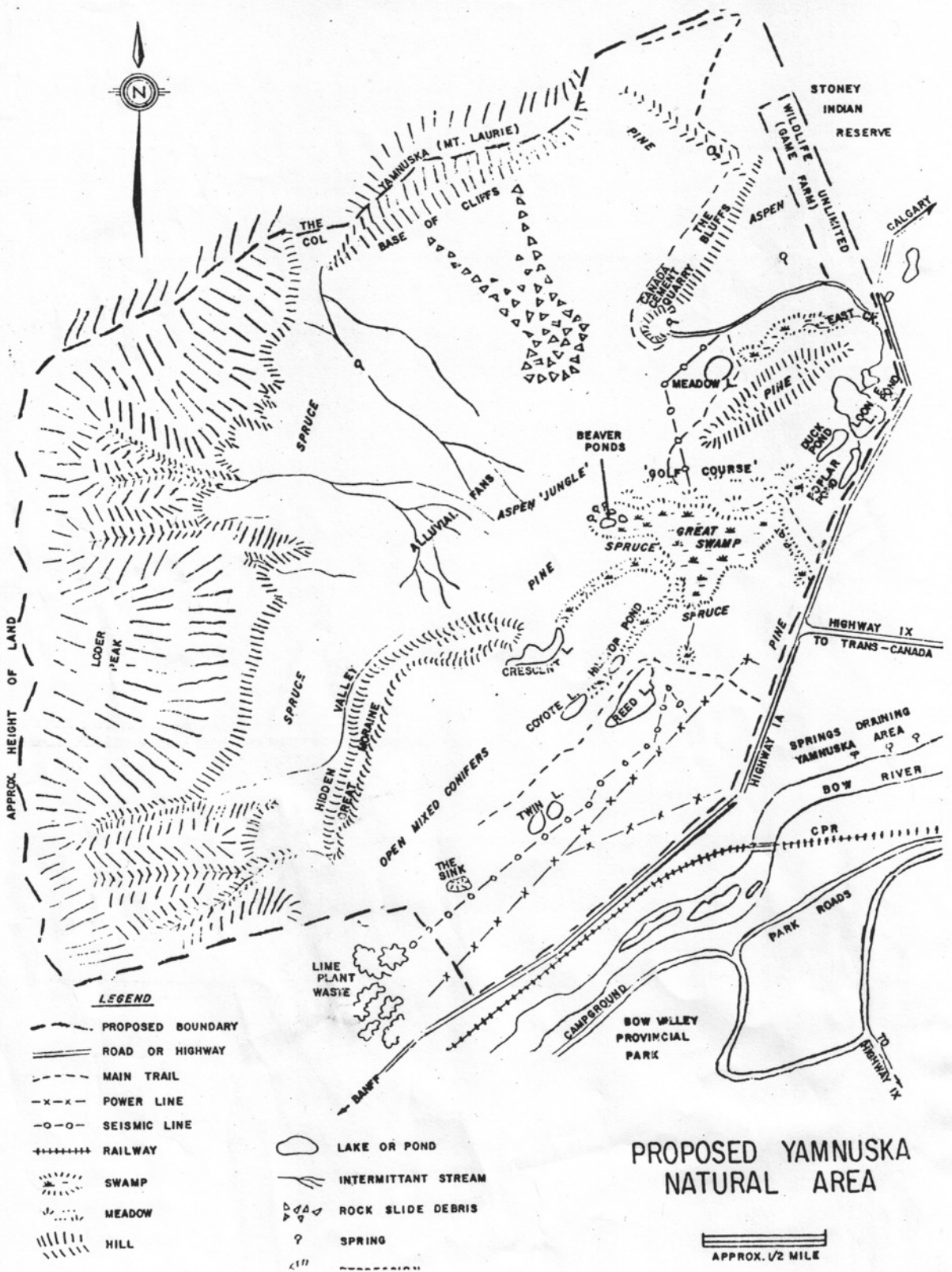
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## I INTRODUCTION

The Yamnuska Natural Area Study Committee has compiled this report in connection with our proposal for protection of the Yamnuska, and to provide a base for continuing investigation of the area's natural history by ourselves and other agencies. The Yamnuska Natural Area is a region of great scenic beauty, geological interest and biological diversity of habitats. It contains remarkable potential for interpretation and environmental education for the Calgary region. It is about 45 miles west of Calgary, and is one of the most accessible natural areas of public land in this region. Its proximity to Bow Valley Provincial Park indicates that no new administrative structure would be required to manage it.

The Eastern Slope Hearings held by the Environmental Conservation Authority awakened an interest in long range goals and planning, and helped focus attention on the identification of natural features needing protection. At the Hearings in June 1973, several individuals in the upper Bow Valley (Seebe, Canmore and Banff) as well as the Bow Valley Naturalists and the Calgary Field Naturalists' Society, proposed that the Yamnuska be protected through some form of natural area legislation, possibly as an addition to Bow Valley Provincial Park. The recent E.C.A. report (September 1974) on these hearings has approved this proposal. To assist in evaluation of the natural history, a Yamnuska Natural Area Study Committee was formed in March of 1974, comprised of members of the Bow Valley Naturalists and the Calgary Field Naturalists' Society. The Committee spent the spring, summer and fall of 1974 making field observations, and have compiled this report with help from friends with interest and expertise in various disciplines. It should be mentioned that the term "Natural Area" is used throughout as a descriptive title only, and does not imply legal status.

A general assessment and recommendations for the Yamnuska have been supplied by Dr. R.C. Scace, Recreation and Land Use Planning Consultant, which are included in this report.

### PARK IDENTIFICATION AND PRESENT COMMITMENTS

The Yamnuska represents a transition zone on the eastern edge of the Rocky Mountains, with features of the foothills forest, aspen parkland and alpine zones. It is roughly oval, almost leaf-like, in shape, some four to five square miles in area, with natural boundaries on two sides: on the west the ridge of Mount Loder (excluding the Loder Lime Plant and gravel pits at the southern end of the mountain); on the north, the col and summit ridge of Mount Laurie and along the east ridge to the Stony Indian Reserve boundary; on the east, Highway 1-A provides a convenient boundary excluding the Bailey Wildlife establishment north of the quarry road (see diagram), the Canada Cement quarry and the rights-of-way held by Calgary Power and Canadian Western Natural Gas. The Canada

Cement quarry holding is cutting into a fine cliff in the eastern part of the aspen forest; this provides sandstone required in their manufacturing. It would be preferable if other sources of stone were found in the neighbourhood so that the operation could be relocated outside Yamnuska. We have also learned very recently that a major portion of the northeast half of the area is under lease to Shell Canada. It is to be hoped that this lease, with seven years to run, will not be developed, or if it is developed, that work is done under strict controls with special precautions to protect the natural values of the area. A grazing lease is held by the nearby Kananaskis Ranch and their fence has no doubt protected the Yamnuska from more indiscriminate use. This grazing is not necessarily incompatible with our proposal, providing there is control of the number of horses grazing the area

## **II THE YAMNUSKA: ASSESSMENT AND RECOMMENDATIONS**

R.C. Scace, Ph. D.\*

It is proposed that a wedge-shaped area of public land, situated on the northern side of the Bow River near Seebe, be added to Bow Valley Provincial Park. Several advantages attend such a recommendation and these are outlined below.

The "Yamnuska Natural Area" lies at the eastern extremity of the Canmore Corridor, approximately one hour's drive from Calgary, and is readily accessible from the Trans-Canada and I-A Highways. The area thus falls within Calgary's recreational day-use area. It lies adjacent to a heavily used provincial park, and on the basis of casual observations at various times, it is an area popular with recreationalists for walking, picnicking, hiking and climbing.

Comparatively heavy casual recreation use of the proposed park addition reflects upon the desire of Calgaryans and others to use public lands in the vicinity of the Front Ranges for non-facilities oriented recreation. Data available on Bow Valley and Kananaskis Valley suggests that these areas attract many day users who appreciate that much public land is available to them in the region, and that this public land offers a variety of scenic recreations. However, public lands are not always readily available, often being ascribed to private use through a variety of leases and licences. Such is the case over much of the Canmore Corridor. However, the seeming plethora of public lands available for recreation is further reduced by unsightly land use activities such as gravel operations and open cast mining.

The Yamnuska Natural Area addition presently experiences an element of private use in that grazing of horses has been permitted there for many years. However, extinguishment of this lease need not necessarily be a prerequisite for the area's inclusion of Bow Valley Provincial Park. Such a position may be justified in part because, although the area possesses a great number and variety of bio-physical resources, (as described in other sections of this study) which alone justify its reservation, the present landscape is a modified one, man having effected changes in several ways.

Some logging and grazing has occurred, numerous trails pass through the area, seismic and power lines are present. Other evidence of human activity will be found immediately outside the area in the form of quarries, pits and so on.

Importantly, one should note that to seek "untouched landscape" in the Bow Valley is a self-defeating task; that the portion of the valley in Banff National Park for example, represents a man-modified and "recreated" landscape. Therefore, in an area such as the

Yamnuska Natural Area one must decide whether the local biological and physical reserves are sufficiently significant to warrant protection and interpretation, and whether the landscape as a whole is sufficiently representative. The study area is acceptable on both counts.

A choice exists on whether to recommend that the Yamnuska Natural Area be established as an individual Provincial Natural Area, or whether it might conveniently be added to the existing Bow Valley Provincial Park. If the former category is recommended, elimination of certain present uses and limited public access or no access is implied. As hiking and public natural-historical interpretive programs are contemplated as major uses of the area, the natural area category would seem to be unsatisfactory. Consequently the area could be appended to Bow Valley Provincial Park, adding to the variety of landscapes and interpretive prospects for that park.

Establishment of an addition to Bow Valley Park at this time is important in the regional context of recreational use. Pressures on recreational use of the National Parks are well known and provincial lands along the eastern Slopes have been viewed from some time as alternative recreational area. As group camping and group recreational activities are gradually eliminated from Banff National Park, so will the recreational and interpretive value of areas such as the Yamnuska Natural area be enhanced. It is desirable that arrangements be made to accommodate such anticipated land use pressures prior to their occurrence.

Finally, although the proposed addition to Bow Valley Provincial Park is presently leased out for grazing purposes, it is subject to much casual, unsupervised recreational use. Such use is conducive to depreciative behaviour on the part of users and random garbage piles, and vegetation distribution reveals the process is under way already. The area's inclusion within Bow Valley Provincial Park would precipitate greater policing activities. Better use management and ultimately a more protected landscape.

\* Recreation and Land Use Planning Consultant, Calgary.

## RECOMMENDATIONS

1. Zone the area as a "natural area" or "interpretive zone" in Bow Valley Provincial Park.
2. Cancel or carefully regulate grazing (n.g. Cypress Hills Provincial Park).
3. Fence or ditch off portions of the area desired to be closed to vehicular traffic.
4. Establish interpretive trails, mark them and provide interpretive literature.



5. Provide summer interpretation by staff.
6. Provide for access by school groups from the Calgary region, as well as from the nearby Y.M.C.A. Camp and the University of Calgary through the Kananaskis Environmental Sciences Centre.
7. Exclude vehicles.
8. No camping, but some picnicking facilities.

### **III HUMAN HISTORY AND RECREATIONAL USE**

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#### HISTORICAL NOTES

As one enters the mountains from the Calgary area, a fan-shaped cliff on the north side of the Bow Valley is the first "Rocky Mountain" to compel attention. It rises from the forest as a positive statement of the mountain element in this landscape. Although of no great altitude, about 7,200 ft., the unique shape of this cliff has a forceful beauty.

According to members of the Stony Indian tribe, Yamnuska, which is the traditional name for the mountain, means either Flat Rock as seen from the northeast, or if pronounced differently, Eya-nuska, Sharp Cliff or Sheer-face Rock. The Stoneys camped in this area when the Loder Lime Plant was first operated, and cut wood here to fire the lime kiln. Some pre-historic use of the area also has been located (see Archeology following). It could have been ideal for hunting camps since the original name of Loder Mountain was Goat, and sheep still visit the col area. No major fires have occurred for many years in spite of the evident hot and dry conditions. Indians fought fire somewhere in the area in 1917 or 1918 but the location of the fire is not known.

The Yamnuska area was within Banff National Park from 1911 until 1929. With the evolution of National Park philosophy it was realized that the extractive industries in the Bow Valley and water power in the Kananaskis Valley were incompatible and the boundary was moved west of Canmore. The old Park Gate was previously located within the Park about 1 mile west of Kananaskis Station, east of Exshaw. In 1922 or 1923 a Professor Cutter stayed at the old Kananaskis Ranch and spent each day in the Yamnuska area collecting fossils. The old Indian wagon trail from the Reserve to Exshaw can be seen in two locations in the Yamnuska, northeast of Loon Lake and in a comparatively dry area in the Great Swamp area.

The mountain has been officially named Mount Laurie for John Laurie, B.A., LL.D.

(1900-1959), a friend of the Indians, who helped them form the Indian Association of Alberta. In order to perpetuate the indian name we have designated the area of our study "Yamnuska", as previously described. Mount Loder is named for the founder of the lime plant at its southern end; early names for this peak have been Goat Mountain and End Mountain, now applied to other peaks in the region.

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## ARCHAEOLOGY OF THE YAMNUSKA NATURAL AREA

J. Humphreys\*

The topography of the area has a varied and subdued moderate relief. It changes from river flat through low ridges to mountain slopes. There are small lakes and swamps along old water courses. Trees border the lakes and swamps and cover the ridges and hillsides. There are a few trails, and access is for the most part easy. The general impression is that the country would be suited to small temporary hunting camps. Longer, more permanent, sites would probably be along the nearby Bow River.

The archaeological search was hampered by the treed areas and brush, and in some places by the uncertainty of recognizing site material amid river and till cobbles. Time did not allow for a systematic search so the immediate attention was given to the lakes and water courses. The eastern portion was not covered.

The following evidence of habitation was found:

1. Several tipi rings, some with fire-cracked rock marking hearths. These are between Duck and Poplar Ponds, (Eg. Ps - 12). No artifacts were collected.
2. Two quartzite uniface tools, about 4 inches on the long axis. These were found at the eastern extremity of the Great Swamp, (Eg Ps - 13). One is in the possession of R.N. Smith, Seebe, and the other in the possession of Mrs. D.M. Humphreys, Calgary.

The surrounding country has ample evidence of past use. The remains of large campsites along the Bow River are known. There are pictographs along the Spray Lakes road, and on Grotto Mountain. Continued searching along the water courses of the Yamnuska Nature Area would probably reveals more small camps and kill sites. Some of the heights of land may have look-out stations for game. Eventually the history will be known. It is important that once away from the construction work bordering the IA Highway, the area is still undisturbed.

\*Director, Archaeology Society of Alberta, Calgary Centre.

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## ROCK CLIMBING AT YAMNUSKA\*

Margaret Gmoser

"Old Yam" is the term of endearment used by climbers to describe their visits to the Yamnuska cliffs. It is probably the most developed rock climbing area in the Canadian Rockies because of its east accessibility and long season. Because the cliff is south facing and usually subject to moderate temperatures, it is popular in the early spring, late fall and for winter climbing when other peaks are covered with snow.

The one mile long limestone cliff band has a maximum height of 1,200 feet and has climbing routes varying from 200 feet to 1,200 feet. There are a number of chimneys but much of the cliff is vertical and overhanging. The routes range in difficulty from Grade III which is moderately difficult, to the more challenging level of artificial climbing. The limestone rock is loose and climbers are advised to wear hardhats, especially since more than one group is often on a route.

To approach the cliff, a trail leads from the west end of the quarry and climbs east of the large scree slope on Yamnuska to the foot of the face. In one hour the hiker or climber is at the base of the cliff where a path leads to the numerous climbing routes. After scaling the face, there is the bonus of an easy hike down the back of the mountain. One may also continue to the open slopes east of Yamnuska across the ridge and descend on a trail into CMC Valley (Calgary Mountain Club). This valley drains east to the Old Fort Creek on the north or back side of Yamnuska and is another popular area for climbing. The cliffs here bear such fanciful names as the Runes, Bilbo, Frodo and Waconda Buttresses; perhaps suggesting exciting adventures as described by J.R.R. Tolkien in "The Hobbit" and "The Lord of the Rings".

On the face of "Old Yam" there are about twenty-seven routes to this date. Many were completed only after repeated attempts and some are still unfinished. The first route, Grillmair Chimneys, was climbed in November 1952 by L. Grillmair, H. Gmoser, and I. Spreat. This accomplishment aroused the interest and enthusiasm of many climbers to try other routes on the face. The main activity was in the 1960's when nineteen routes were pioneered, most of them by B. Greenwood, D. Vockeroth and R. Lofthouse.

In the early years the most obvious lines were tried and later the cliff was examined more closely for less obvious and artificial routes. The routes bear such names as Forbidden Corner, Windy Slabs, Freak Out, Direttissima and Easy Street. "A Climbers Guide to Yamnuska" by B. Greenwood and U. Kallen gives detailed information on all the established routes.

\* Note: Climbers call Mt. Laurie "Yamnuska" and in this paper we have respected their terminology.

Yamnuska is regularly used by members of various climbing and hiking clubs such as the Alpine Club of Canada, the Calgary Mountain Club, and the Canadian Youth Hostel. These clubs offer seminars in beginner and intermediate mountain climbing techniques. The quarry cliff at the start of the trail is often used for this purpose and it is excellent for practice climbing. It contains many short pitches showing the different rock formations such as slabs, cracks, chimneys and ledges. Groups are often introduced to the techniques of basic rock climbing here and later taken on one of the easier routes on the cliff proper.

Many people climb here regularly with their companions, while many others come to Yamnuska for the first time as visitors through the guidance of organizations such as Canadian Mountain Holidays, High Horizons and with other private licensed mountain guides from Banff.

The cliffs are ideal for practicing mountain rescue techniques and for training future mountain guides. The National Park Warden Service, the Association of Canadian Mountain Guides, and the Mountain Rescue Group from Calgary all make regular visits to Yamnuska for these purposes.

A climber travelling on the Trans-Canada Highway cannot help but be impressed by this steep rock cliff which dominates the Bow Valley at the entrance to the Rockies. This impressive face with its proximity to the highway, the easy open slopes leading to the base of the cliff, and the relatively good rock will always make Yamnuska a very popular climbing area.

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## NOTES ON GROUP USE

Expressions of interest and support for protection of Yamnuska have been received from various groups who have enjoyed the area in one way or another, and one of these letters is quoted below.

Field trips have been conducted here by the Federation of Alberta Naturalists (1972), the Calgary field Naturalists Society (1974) and the Bow Valley Naturalists on several occasions. The Y.M.C.A. from nearby Camp Chief Hector, has used the area for many years both for nature study and climbing instruction. Climbing instruction for Calgary Schools is carried out here each year under the supervision of the alpine Club of Canada. The Camrose Camera Club, Gateway Camera Club (Edmonton) and Edmonton Foto Club, have obtained some 80 signatures (unsolicited) in support of our proposal. This is merely an indication of the current use and appreciation of the Yamnuska by Albertans.

A letter from the Varsity Venturer Club:

Dear Sir:

This report is being submitted by the members of the 131st Varsity Venturer Company, Calgary, because of our support of the Yamnuska proposal. The 131st Company consists of seven young fellows aged 14 to 16 years and two adult advisors who all have a love for the outdoors.

Venturing is a section of the Boy Scouts of Canada for young people aged 14 to 17 with a program planned and participated in by the members. The 131st Venturer Company has a program involving hiking, camping, cross-country skiing mountain climbing and canoeing. The members are also committed to and participate in Boy Scouts of Canada Calgary Region's new program, Live in Harmony with the Environment.

### PRESENT USE OF AREA.

During the past three to four years, the members of the Company have spent many a day on the lower cliffs of Mt. Yamnuska, practicing their climbing technique and enjoying the scenery of the area in Spring, Summer and Fall. Time has also been spent just walking the area, enjoying the flowers, birds, scenery and pleasant serenity of the area. We have seen many mountain climbers, hikers and campers using the area.

### OUR CONCERNS

1. The quarry of course is an ugly scar, but is not as great a problem as the damage to vegetation done by machinery operating here.

2. A number of areas have been heavily damaged by camping (ground cover very sparse, trees chopped and garbage and large unsightly campfire rings).
3. People - their disregard for property and the environment (gates and fences destroyed, garbage, vandalism and indiscriminate car parking and car travel).

#### SUGGESTIONS FOR USE

1. Area should be set aside as a natural park.
2. If possible, the quarry operation should be moved elsewhere. The area could be set aside as a study area of geology with rock type, strata formations, etc., indicated by signs and pamphlets, for use by geology students, school boards, etc.
3. Vehicle traffic and camping in the area be restricted.
4. Because of the proximity to both Calgary and Banff, the area could be maintained as a natural area to be used by the public, the University of Calgary, the School Boards, etc. for hiking, nature study (birds, plants, animals, geology), climbing, snowshoeing, cross-country skiing.

#### CONCLUSION

We believe that with the natural facilities, and proximity to Calgary and Banff, Albertans and visitors to Alberta travelling the Trans-Canada would benefit now and in the future from the availability of such a natural area.

Respectfully submitted,

131st Varsity Venturer Company  
c/o Brian Dennis  
3831 Varsity Dr. N.W. Calgary, AB T3A 0Z3

## IV NATURAL HISTORY

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### THE GEOLOGIC FEATURES OF THE PROPOSED YAMNUSKA

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#### PROVINCIAL PARK

Lionel E. Jackson Jr.\*\*

The proposed provincial park at Mt. Yamnuska\* and the adjacent lowlands to the south presents an unsurpassed outdoor geologic demonstration laboratory. Located within this area are such diverse geologic features as excellent exposures of the McConnell thrust along which many cubic miles of the earth's crust have moved, superb exposures of deltaic sedimentary structures, and as great a variety of glacial land forms as can be found in any similar area in the province. Coupled with these geologically unique or interesting features are easy access to and the magnificent views of many of these geologic features.

#### Geological History and Notable Features of the Bedrock of the Mt. Yamnuska Area

The bedrock formations of the Mt. Yamnuska area fall into three periods of geologic time, the Middle and Late Cambrian (560 to 505 million years before present (B.P.) and the late Cretaceous (105 to 67 million years B.P.).

The Eldon limestone is the thickest formation of Late Cambrian age found in the Mt. Yamnuska area (about 1100 feet thick) and it is also the most significant cliff forming unit in the Mt. Yamnuska area. The Eldon limestone forms the sheer cliffs of the south face of Mt. Yamnuska and the wall of Goat mountain (to the left on fig.1). The Eldon Limestone was deposited beneath a warm shallow sea which covered much of Western Canada during Late Cambrian time. The boundary separating the top of the Eldon Limestone from the overlying Pika, Arctomys, Cairn and Southesk formations (collectively known as the Fairholm group) is known as an erosional unconformity. About 150 million years of geologic time are missing from the geologic record along this boundary. Evidence from elsewhere in Western Canada indicate that more rocks were probably deposited within the intervening time period between the deposition of the Eldon and Pika Formations. However, long periods of emergence and attendant erosion removed these rocks. This great erosional unconformity can be seen from almost anywhere in the proposed park.

\*Note: In the reference literature Mt. Laurie reads Mt. Yamnuska and Mt. Loder reads

Goat Mountain, and these names have been retained in this paper.

\*\*Associated with the Department of Geology, University of Calgary, and the University of Calgary's Environmental Sciences Centre at Kananaskis.

The Fairholme group are dolomite and represent another incursion of a warm shallow sea into Western Canada in Late Devonian time.

The Belly River Formation of Upper Cretaceous age consists of between 1000 and 1500 feet of sandstone with scattered beds of shale and coal. The Belly River Formation was deposited as a large delta along an ancient sea which at times spanned much of central North America during Late Cretaceous time. Impressive sandstone cliffs along the southern toe of Mt. Yamnuska have preserved in them ancient channels and river related sedimentary structures formed by the streams which coursed across the ancient delta. Coal and shale beds exposed at various points on the slopes of Mt. Yamnuska were deposited in inter-channels swamps, and estuaries which periodically occupied parts of the delta.

The most spectacular and interesting feature of the Mt. Yamnuska area is the McConnell thrust. Along this great fracture in the earth's crust, a block of the Rocky Mountains several miles thick and tens of miles in length was shoved between eight and 25 miles to the east and elevated five miles in the process, during the birth of the Rocky Mountains over 50 million years ago. The mass of the rock moved long this thrust taxes the imagination. The thickness of Eldon Limestone atop Mt. Yamnuska is but a small fraction of the thickness of this thrust sheet. What is equally amazing is that the rocks along the thrust are relatively undisturbed rather than completely pulverized. Geologists now have an explanation for the movement of such colossal masses of the crust with so little attendant disturbance of rock along faults. They liken the process to the manner in which a hovercraft moves on a supporting cushion of compressed air. Once the hovercraft is airborne it is nearly frictionless and can be pushed in any direction with ease. Geologists believe fluids within the pore spaces of rocks support the weight of the overlying thrust sheet so it can be moved about by deforming forces with little disturbance of rock along faults.

The great movement of rock past rock on the McConnell Thrust has brought Eldon Limestone into juxtaposition and superposition with the Belly River Formation which completely reverses the normal stratigraphic succession of these rocks. Instead of rocks becoming older with descent into the earth, the Cambrian Eldon Limestone caps the Belly River Formation of Cretaceous age which is about 350 million years younger than the Eldon (fig.1).

The McConnell Thrust can be easily hiked to and is very well exposed on Mt. Yamnuska. The combination of exposure and accessibility are rarely found in similar geologic situations elsewhere in North America. The Mt. Yamnuska area is also interesting in that it clearly displays the nature of the boundary between the foothills and the Rocky



Mountains - the faulting of the resistant mountain-forming Paleozoic carbonates to the surface.

The inversion of stratigraphy at Mt. Yamnuska has left a legacy to the mountain climbers who frequent its sheer cliffs. The titanic weight of the Eldon Limestone resting on the Belly River Formation has caused the Belly River Formation to compact. This compaction has not been uniform. The vertical cracks and chimneys, which are followed by mountain climbers, were and continue to be formed by the differential settlement of the Eldon Limestone massif.

### Glacial and Post Glacial Geologic Features of the Mt. Yamnuska Area.

The last advance of glacial ice down the Bow Valley past Mt. Yamnuska at the close of the Pleistocene Epoch left many diverse and well developed glacial landforms in the lowlands of the proposed park area and vicinity. Drumlins, low asymmetric hills, were molded and scoured beneath the moving ice. A great field of drumlins begins within the proposed park site and extends about 15 miles down valley to near Ghost Reservoir. As the climate warmed and the glacial ice retreated up the Bow Valley, the retreating ice left large outwash plains of sand and gravel in its wake as well as isolated masses of stagnating ice. One such ice mass occupied the site of the proposed park. The great moraine along the east toe of Goat Mountain marks the margin of the ice mass. As the stagnant ice disintegrated into smaller masses, meltwater streams and slumping debris from the top of the ice formed deposits of sand and gravel or kames around the smaller ice blocks. Once the melting was complete, the depression formerly occupied by the ice became a kettle. Almost all of the ponds and lakes in the proposed park occupy kettles rimmed by kame ridges. Stream courses which carried meltwater are now dry or marshy and are found throughout the proposed park area; stream courses which carried meltwater beneath the ice, are now exposed as eskers, long narrow sinuous ridges several to tens of feet in relief.

All of the glacial features of the park and adjacent areas can be observed from the base of the cliffs of Mt. Yamnuska. Few other places exist within the province where so many glacial landforms can be viewed from a single location.

The elements are continually at work reducing Mt. Yamnuska and other peaks of the Rockies through the agencies of frost wedging, solution, pounding by falling rocks, and wind action. The talus slopes which skirt Mt. Yamnuska bear testimony of these processes. A rock-slide at the base of the south side of Mt. Yamnuska shows that the processes of erosion can work sudden and catastrophic changes as well as slow continuous changes. Such deposits, while certainly not unique, are well exposed and easily accessible or viewed in the Mt. Yamnuska area.

## Scientific and Educational Use of the Mt. Yamnuska Area

The Mt. Yamnuska area is internationally known for its geological features. It is a frequent destination for field trips organized by professional societies and symposiums frequently held in Calgary and Banff. Examples are the Canadian Exploration Frontiers Symposium of 1971. The Mt. Yamnuska area is a frequent destination of geology and geophysics field trips from the University of Calgary. Two Masters and one Doctoral theses have already been written on the geology and geophysics of the area. The "textbook" examples of thrust faults, sedimentary structures, and glacial landforms within the area make it a natural outdoor geology classroom for students of all levels.

Incorporation of the Mt. Yamnuska area into the Provincial Park System may well stimulate Albertans to discover, explore, and understand the geologic history and heritage of their province.

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## THE FORESTS OF YAMNUSKA

In the southwestern section of the study area open mixed coniferous forest occurs: Lodgepole Pine, Limber Pine, Douglas Fir and White Spruce. Healthy regeneration of all species is evident. Limber Pine is confined to this region. Two factors influence tree growth in the Yamnuska, wind and heat. Where they are not protected by Loder Mountain, strong prevailing southwest winds stunt trees in exposed areas, and in extreme cases provide a stunted form of Douglas Fir akin to krummholz in the alpine. This is most evident on the Great Moraine (Terraced Kame) and in the gully at its south end. Hot and dry conditions (southern exposure) in midsummer favour the opening of lodgepole pine cones and there seems to be natural propagation here since there is no evidence of a major recent fire; normally fire is required to open cones of mature pines.

The major occurrence of spruce forest is on the lea slope of Mount Loder, the west end of Mount Laurie and ascending to the Loder-Yamnuska Col, where Alpine Fir is evident with increasing altitude.

In the flat areas adjacent to Highway 1-A conifers are generally dominant, with Aspen and Balsam Poplar in gulleys and near lake shores.

On the lower slopes of Mount Yamnuska there is an extensive Aspen forest "jungle", with minor but significant mixing of Balsam Poplar indicating water dispersement. Small clumps of Spruce or Douglas fir occur, on knobs chiefly.

Three species of Birch plus a hybrid occur in Yamnuska; Western White Birch, Water Birch, Dwarf Birch, and a Swamp Birch-Dwarf Birch cross. White Birch is confined chiefly to the base of mount Laurie, where it occurs with Douglas Maple. Water Birch is widespread, occurring in mixed forest and coniferous forest throughout the region, even in dry exposed areas such as the Great Moraine. Alder is occasional in the Aspen forest and damp areas. The small birches are pretty well confined to the Great Swamp.

### HABITAT NOTES

#### Dry Stony Meadows

These occur throughout the lower region on drumlins, eskers and outwash plains. These stony meadows are the first to bloom in the spring and are amazingly rich in species. Major components are; Prairie Crocus, Cut-leaved Anemone, Early Cinquefoil, Three-flowered Avens, Shooting Star, Early Blue Violet, Heart-leaved Alexander, Early Loco Weed, Low Blue Larkspur, Moss Phlox, Yellow Beard-tongue, Wild Strawberry, Star-flowered Solomon Seal, Harebell, Townsendia, Gaillardia, Silvery Ragwort, Death

Camas and Green Lily, Field Chickweed and several Rock Cresses.

A unique micro habitat in this classification is located below Mt. Loder, at the south end of Terraced Kame, where stony meadow plants mingle with some mountain species, notably Mountain Avens, Double Bladderpod with a prolific blooming of small Shooting Star, Early Blue Violet, Heart-leaved Alexander and Green Lily.

A colonizing plant on bare stony areas and locally abundant is the Yellow Dryas. In disturbed areas such as gravel pits and roadsides, Russian Thistle, Golden Corydalis, Yellow Rocket, Shepherd's-purse, Hare's-ear Mustard, Grey Tansy Mustard with several other mustards, Stinkweed, White Clover, two Blue-burs, Toadflax and Plantain.

The stony meadows grade in some instances into open coniferous forest, elsewhere into poplar association or mixed woodland. In the open coniferous forest, kinnikinnick is a major ground cover, with frequent occurrence of both species of juniper, Buffaloberry and some Shrubby Cinquefoil. Many of the stony meadow plants occur here also, especially at the western end where the Yellow Lady-slipper is a notable feature, mingling with Early Locoweed, Cut-leaved Anemone, Long-bracted Orchid and some Wood Lily and Green Lily. However this habitat is not so species rich as the stony meadows.

### The Aspen Jungle

The dominant characteristics of the Aspen forest are achieved in the great band of "jungle" at the base of Mount Laurie, where only a few horse trails make it possible to penetrate in mid-summer. White-tailed Deer are sometimes seen here. Aspen is dominant, with clumps of Balsam Poplar, Alder, Willow and Water Birch. At the upper limit of the Aspen, Douglas Maple and White Paper Birch have their chief occurrence. The influence of avalanches, talus movement and snowmelt from the mountain is evident here and in the gravel fans active at the north end of Mt. Loder. In these areas poplar, alder and other species are able to survive in unstable conditions by suckering: the tree may be damaged but new growth is produced from the base of the plant to replace it. Rocky conditions insulate the roots from dessication.

The shrub layer in the aspen jungle consists chiefly of Roses, Raspberry, Gooseberry, Chokecherry, Red-osier Dogwood, Saskatoon, Low-bush Cranberry with some White Spiraea. Twining Honeysuckle and Blue Clematis are common. Some typical flowering plants: Western Wood Lily, Meadow Rue, Tall Larkspur, Northern Bedstraw, Strawberries, Western Canada Violet, White Geranium, Paintbrush, Yellow Pea Vine, Wild Vetch, Fireweed, Cow Parsnip, Baneberry, Common Pink Wintergreen, Striped Coral Root, False Solomon's Seal, Twisted Stalk, Fairy Bells, Bronze Bells. Snakeroot and Spotted Coral Root also was found in the jungle.

In the richer meadows adjacent to the aspen forest, towards the north end, Sticky Purple

Geranium, Woolly Gromwell, Cut-leaved Anemone, Heart-leaved Alexander, Chickweed and Yellow Pea Vine occur. An Aspen-Alder association is found on the bench beyond the rock quarry, where Heart-leaved Arnica, Bunchberry and Low Blueberry occur.

Various birds nests were found in the aspen forest and Ovenbirds were commonly heard singing here, as well as Warbling and Red-eyed Vireos. Bluebirds nest in aspens between the Great Swamp and the "stony meadow". Chickadees, Chipping Sparrows and other small birds also like these verges. A Goshawk nest was found in this area with a thriving family well guarded by screaming parents.

A damp area in Hidden Valley, behind the Great Moraine and under Mt. Loder, has a fairly dense colony of willow which, with adjacent aspen forest and shrubby areas on the gravel fans, provides some good bird habitat. Here Calliope Hummingbirds are common. It is also frequented by warblers, Least and other flycatchers. A White-throated Sparrow was heard singing here.

Pure stands of Spruce occur on the slopes of Mt. Loder as has been noted. Climax spruce in wet habitat is fairly well confined to isolated stands southwest of the Great Swamp and along the stream near the highway at the north-east end. Here Round-leaved Orchid, Sparrow's Egg Orchid, Twinflower, Single Delight and other Wintergreens occur. Ruby-crowned and Golden-crowned Kinglets, Chickadees and Red-breasted Nuthatches, with Audubon Warblers, are common birds of this habitat.

### Swamp and Adjacent Damp Shrubby and Woodland Habitats

The Great Swamp contains evidence of ancient beaver dams which have created a series of unique damp and wet habitats. Springs at the head of this area are contained by an old beaver dam to provide the deepest pond, and here Arrowhead grows. Damp-loving plants in the main section of the Great Swamp include Twayblade, White and Yellow Lady-slippers and many Habenarias. Where drainage from Crescent Lake joins the main stream Buckbean occurs; a little further down it occurs again with Three-leaved Solomon's Seal. In the lower section of the swamp the Tall White Bog Orchid, Bog Violet, Sparrow's Egg Lady's-slipper. Two rare plants also occur: Aster junciformis and Narrow-leaved Sundew. Other damp-loving plants in the general area include Butterwort, Few-flowered Anemone, Asphodel, Round-leaved Orchid, Grass-of-Parnassus, Dewberry and Dwarf Raspberry.

In the aspen which forests the banks of the stream draining the swamp, and near a small pond south of this stream, plants were found not generally seen elsewhere: Water Avens, Seneca Root, Yellow Avens, Water Hemlock and Snakeroot as well as Bog Violet. In this pond Mare's-tail and Creeping Buttercup are unique. Hedge Nettle, Mint and Giant Ragwort also grow near this stream.

In the swampy area willow and Red-osier Dogwood as well as shrub Birch provide habitat for many warblers and sparrows. Greater Yellowlegs and Solitary Sandpipers breed here also, as do Calliope Hummingbirds.

Marl characteristics are evident in many of the lakes of Yamnuska. Indicator plants of this feature are found in the swamp, i.e. Buckbean and Creeping Spearwort. Marl conditions are created when water filters through calcareous material and drains into a lake basin, providing calcareous conditions for plants.

There are seven small kettle lakes in the moraines southwest of the Great Swamp. The most westerly, Sink Lake, dries up in summer and grasses colonize here. Twin Lakes have some poplar association along their shores where some interesting plants may be found: Ladie's Tresses, Fringed Gentian, Silverweed, Blue Columbine, Willow Herb and Scouring Rush, while Water Smartweed flowers the water in August. A rare plant, *Habenaria unalascensis*, was found on the south slope of the east Twin Lake. Reed Lake, further east on the same level, is sheltered by moraine ridges and there is more spruce in the forest composition. Shooting Star, Creeping Spearwort and Common Great Bulrush are features of this lake. Coyote Lake and Hilltop Pond lie on the bench above the last mentioned; both ends are boggy, with Yellow Lady's-slipper a major specie. Butterwort, Sweet-scented Androsace, Dewberry and Dwarf Raspberry area also common here. Crescent as well as Hilltop and Coyote lakes have old drainage channels, still seasonally active, towards the Great Swamp.

Meadow Lake lies near the quarry road in the aspen jungle, with fairly rich meadow on the south side. It is a popular spot for picnicking and informal camping. Below this, near the highway, the modern Beaver dam lakes, Loon, Duck Pond and Poplar Pond, lie in more or less mixed forest with enough concentration of poplar and willow along their shores to satisfy the needs of the beaver that built them. Largest of these is Loon Lake, where loons habitually nest as well as some ducks. A kingfisher's presence confirms some fish population in these lakes. In the spring of 1974 Poplar Pond had indications of fairly recent beaver activity, including a new dam at its lower end. In October of this year beavers had once more moved into this pond and a new lodge was being built on the west shore of the lake. The stream supplying these lakes rises in a swampy area below Meadow Lake. Three springs were located on the slopes of Yamnuska, all of which disappear within a short distance. A new beaver pond appeared in 198.. It is located south of Meadow Lake and north east of Loon Lake. The new pond is very active in the spring with migrating waterfowl and some of them have nested. It has become a favourite stop on our May Species Count Field Trip for early species growing on the dry open ridge at its north end and for the variety of birds around the pond. Amphibians have also discovered this new habitat.

## The Mountainside

Scree areas penetrate the aspen forest near the base of Mt. Laurie and here Douglas Maple, Western White and Water Birch, Alder and Low-bush Cranberry with Red-osier Dogwood occur. Above this are bands of live scree containing few plants, while in other areas towards the northeast of this and on the ridge below the Loder-Laurie col, interesting floral associations are evident: sensational clumps of Yellow Lady's-slipper, Smooth Blue Beard-tongue, Fragile Fern, Common Saxifrage, Yellow Pea vine, Purple Vetches with Kinnikinnick and Mountain Avens on rocky outcrops.

The cliff band north of the quarry yield a unique community also. Their niches offer foothold for clumps of Blue-eyed grass, Mountain Goldenrod, Chokecherry, Harebells, Red Raspberry, Shrubby Cinquefoil, Alum-root, Yellow Sedum, Yellow Avens, Golden Corydalis, False Dandelion, Yellow Beard-tongue, Common Saxifrage, Pink Pussytoes and Long-bracted Orchid as well as Alpine Arnica.

In the scree meadows below the east ridge Mountain Phacelia grows with Bergamot and Smooth Blue Beard-tongue from the foothills, along with Yellow Lady's-slipper, Western Lousewort, Wood Lily and Gaillardia.

On the summit of this east ridge there are scattered Spruce and Lodgepole Pine between great rock slabs ringed with Yellow Lady's-slippers, scree beds containing Mountain Avens, Alpine Cinquefoil, Rosy Sedum, Sweet-scented Androsace, Yellow Lady's-slipper, Phacelia and Cut-leaved Anemone. Some Blue Columbine and Clematis also occur here.

At the west end of the mountain the col, at somewhat higher elevation, has even more alpine elements, which mingle with parkland and prairie species in the screes below the col. Alpine Fir is dominant in the col area, mixing with Douglas Fir on the ridge below. Typically mountain birds are found in the col region: Solitaires and Hermit Thrush, with White-winged Crossbills flocking in the adjacent spruce forest towards Mount Loder.

Plants seen in the col screes include species of Umbrella Plant, Alpine Cinquefoil, Western Spring Beauty and Alpine Spring Beauty, Phacelia, Fragile Fern, Mountain Avens, a mountain Fleabane (*E. acris*), Rosy Sedum, Smelowskia, Alpine Anemone and Cut-leaved Anemone. It is interesting to find Tall Larkspur growing in scree near the col, although its normal habitat is the Aspen forest. Golden Bean was growing with Smooth Beard-tongue in scree meadows high on the ridge, along with Alum Root, Phacelia and Double Bladderpod. A rare plant, *Campanula uniflora* was found on the north side of the col.

It is hoped that these habitat descriptions, although far from complete, will provide some indication of the variety to be found in the Yamnuska.

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## MOTHS, SKIPPERS AND BUTTERFLIES OF THE YAMNUSKA NATURAL AREA

C.D. Bird\*

The 10 moths, 4 skippers and 15 butterflies reported here are only a small portion of the possible number as only a few collections and observations have been made, and these were mainly in the spring. No attempt has been made to obtain information on night-flying moths by using light traps or by sugaring and none of the micro-moths have been studied. It is predicted that at least 300 moths, 8 skippers and 50 butterflies will eventually be found in the area.

The available data suggests that this Natural Area has a rich moth and butterfly fauna. This fauna appears to be made up primarily of woodland and foothill species but also contains a number of species characteristic of prairie habitats.

The following account lists those species collected by the writer during the Federation of Alberta Naturalists' field trip on June 18, 1972, and by the writer and Peter Allen while on the Calgary Field Naturalist' field trip of June 16, 1974. It also includes a number of observations made on informal field trips by Peter Allen, Joyce & Keith Cole, Daphne and Sandy Denton, and Mike & Diane McIvor.

### MOTHS

#### FAMILY AGARISTIDAE

*Alypia langtoni* - Langton's Forester.

A medium sized, black moth with its upper side marked with two yellow spots on each fore wing while two white spots occur on each hind wing. One individual was seen in the area on June 18, 1972 (C.D. Bird). Its flight period in Alberta is from the end of May to early July.

#### FAMILY ARCTIIDAE

*Nemeophila (Parasemia) plantaginis* - The Small Tiger Moth.

This attractive, medium sized, black and white moth exhibits many variations in the size and position of its white markings, so much so that it often appears that one is dealing with different species. Thomas E. Bean has an interesting article in the Canadian Entomologist in 1895 in which he discusses and illustrates this variation. He reported that this moth, which he called *Nemeophila petrosa*, is one of the commoner ones during July in the vicinity of Laggan (Lake Louise). He comments that "a great majority of the individuals seen in flight are males, the disparity in relative numbers of males and



females observed resulting from the quieter disposition of the females. The males are very restless and readily take to flight, thereby attracting observation. The females, less demonstrative, fly but little and are seldom noticed". Individuals have been observed in the area on June 18, 1972 (C.D. Bird) and July 7, 1974 (Mike and Diane McIvor) Its flight period in Alberta is from mid June to the end of July. Bean states that the "larva is a general feeder, thriving on aster, strawberry or grass".

*Parasemia (Hyphoraia) parthenos* - The St. Lawrence Tiger Moth.

A moderately large brown moth with its upper side marked with white blotches on its fore wings and yellowish ones on its hind wings. Individuals have been observed on June 18, 1972 (C.D. Bird) and July 7, 1974 (Mike & Diane McIvor). Adults can be found in Alberta in June and July. It occurs in wooded areas east across southern Canada. The larvae are solitary defoliators which feed on Willow, Alder and Birch. Pupation may not occur until spring as larvae have been found in Alberta in September and late May.

#### FAMILY GEOMETRIDAE

*Epirrhoe tristata*.

A pretty little black and white, day-flying moth. One specimen was collected on June 8, 1972 (C.D. Bird).

*Epirrhoe plebeculata*.

Picture taken May 10, 1975 (M. & D. McIvor) Identified by C.D. Bird.

*Holarctias (Leptomeris) sentinaria*.

A small, brown, day-flying geometer with two darker brown lines running across the middle of the fore and hind wings above. One specimen was collected on June 18, 1972 (C.D. Bird). Its flight period near Calgary is from mid June to early July.

*Isturgia (Epilis) truncataria*.

A small, dark-brown, day-flying geometer with three pale yellow lines running across the fore and hind wings above. One specimen was collected on June 16, 1974 (Peter Allen). Its flight period near Calgary is from the end of May to early July.

*Mesothea viridipennata*.

One specimen of this small, pale green geometer was collected on June 16, 1974 (C.D. Bird). It is known from wooded areas, especially near bogs, in Alberta and adjoining British Columbia. The larvae are single defoliators which feed on Canada Buffaloberry, Alder and Willow. Adults appear about mid May and larvae may be found from mid July to late August.

## FAMILY PHALAEENIDAE

*Synedoida petricola* (*Syneda athabasca*).

A medium sized, day-flying, underwing moth with the upper side of its hind wings barred with pale yellowish-brown and dark grey marks. One individual was captured on June 16, 1974 (C.D. Bird). It can be found on the wing in Alberta from June to early August.

*Brephos infans* - The Infant.

Picture taken May 10, 1975. (M. & D. McIvor). Identified by C.D. Bird.

## FAMILY SPHINGIDAE

*Hemaris (Haemorrhagia) diffinis* - The Snowberry Clearwing.

One individual of this clear-winged, day-flying hawk moth was observed on June 18, 1972 (C.D. Bird). Its larvae feed on Snowberry, hence the common name. Its flight period in the Calgary area is from the end of May to Early July.

*Smerinthus (Sphinx) jamaicensis* - The Twin-spot Sphinx.

A moderately large hawk moth with two bluish-purple spots surrounded by black set in a red field on the upper side of each pale yellowish-brown hind wing. The fore wings above have pale yellowish-brown and dark-brown markings. One specimen was collected on June 16, 1974 (Peter Allen). Its flight period in Alberta is from late May into July. The larvae of this wide-ranging species feed mainly on Willows and Aspen and are usually seen from late July to late August. It overwinters in the pupal stage.

## SKIPPERS

*Erynnis icelus* - Dreamy Dusky Wing.

A dark brown skipper with the fore wings grayish on the upper side and crossed by two black lines and a row of fine white spots near the outer margins. One male was captured in the area on June 12, 1973 (Peter Allen) and two females on June 16, 1974 (C.D. Bird and Peter Allen). This species is widespread in forested areas. Its larvae feed on Aspen.

*Erynnis persius fredericki* - Persius Dusky Wing.

Like the previous skipper but with more pronounced white spots near the outer margins of the fore wings above. Two specimens were captured on June 18, 1972 (C.D. Bird) and four males and four females on June 16, 1974 (C.D. Bird and Peter Allen). This subspecies is widespread in forested areas throughout western North America. Its larvae also feed on Aspen.

*Pyrgus ruralis* - Tow-banded Checkered Skipper.

This skipper has black wings with white checker marks. Unlike two related species that

occur in the province, it has the two bands of white spots across the upper side of the fore wings bent and appearing like a cross. One individual was captured on June 16, 1974 (Peter Allen). The species may be found on the wing in forested areas in Alberta from late May to late August. Its range in North America is from Alberta west to Vancouver Island and south to California. The larval food plant is unknown.

*Thorybes pylades* - Northern Cloudy Wing.

A large, dark brown skipper with the upper side of the fore wings having two white marks along the upper margin and three white spots in the centre. Five individuals were observed on June 16, 1974 (P. Allen & C.D. Bird). It is widespread in forested areas of North America where its larvae feed on Vetches and other legumes. The flight period in Alberta is from early June to early July.

## BUTTERFLIES

### FAMILY PAPILIONIDAE

*Papilio glaucus canadensis* - Canadian Tiger Swallowtail.

A large, yellow swallowtail with a black "tiger-stripe" running across the middle of the hind wings. One individual was observed in the area on June 12, 1968 (Keith and Joyce Cole) and two males on June 16, 1974 (C.D. Bird and Peter Allen). The species is widespread in forested areas in Canada. Its larvae feed mainly on Aspen. In Alberta the flight period is from late May to late July.

*Papilio nitra* - Nitra Swallowtail.

One female of this mostly black swallowtail was captured on June 16, 1974 (C.D. Bird). Rare in Alberta, it has been found on the wing from late May to mid July. Its larval food plants are uncertain but probably are in the Carrot Family. Several workers feel that this butterfly may simply be a dark (melanistic) form of the next species.

*Papilio zelicaon gothica* - Gothic Swallowtail.

A yellow swallowtail that is smaller than *Papilio glaucus canadensis* and lacks the "tiger-stripe" on the upper side of the hind wings. One individual was photographed in the area on June 9, 1974 (M. & D. McIvor). The subspecies occurs from southern Alberta east to Saskatchewan and south to Colorado. Commoner than the previous species, but never abundant. Its flight period is the same. The larvae feed on members of the Carrot Family.

### FAMILY PIERIDAE

*Colias eurytheme eriphyle* - Alfalfa Butterfly.

The common yellow sulphur of southern Alberta. It differs from related species by

lacking any trace of orange and by having a row of dark spots near the margins of the hind wings below. One female was collected in the area on June 16, 1974 (C.D. Bird). It may be found on the wing from mid May into September, usually in open fields and meadows. The larvae feed on members of the Pea Family. This butterfly belongs to a taxonomically complex group and may eventually be regarded as synonymous to, or a subspecies of, the eastern *Colias philodice*.

*Euchloe creusa* - Creusa Marbled White.

A medium sized white butterfly with green marbling on the hind wings below. This marbling is finer than that of the related *Euchloe ausonides* which probably also occurs in the area. One male was collected on June 16, 1974 (C.D. Bird). The species occurs in forested areas from Alberta and B.C. south to California. Its flight period in Alberta is from late May to early August. Its larvae probably feed on members of the Mustard Family.

Species collected on "The Bluffs" June 14, 1975. (C.D. Bird)

*Euchloe ausonides* - Creamy Marblewing

*Callophrys augustinus* - Hairstreak

*Pieris rapae* -

#### FAMILY LYCAENIDAE

*Callophrys polios obscurus* - Hoary Elfin.

A small brown butterfly with the outer half of the underside of the hind wings frosted with greyish scales. Two related species, which may occur in the area, lack this hoary appearance. Many individuals were seen on May 26, 1974 (Daphne & Sandy Denton) and 5 were collected on June 16, 1974 (C.D. Bird & P. Allen). The sub-species is common in forested areas of western North America in areas where its larval food plant, Common Bearberry, occurs. The flight period in Alberta is from early May to late June.

*Celastrina argiolus lucia* - Spring Azure.

One of the very first butterflies to appear in the spring, this small blue has azure wings on the upper side while the hind wings below have pale brown markings and a wavy band near the margin. Two forms occur in the area, the typical one with a pale brown patch in the middle of the hind wings below, and form *marginata* which lacks this patch. Large numbers were seen around wet spots on May 26, 1974 (D. & S. Denton) and one was seen on June 16, 1974 (C.D. Bird). Widespread in moist forested areas in proximity to its larval food plant, Red Osier Dogwood. Eggs are laid on the young shoot tips shortly before the leaves emerge. The Alberta flight period is from mid April to mid June.

*Everes amyntula* - Western Tailed Blue.

A tiny, pale blue with hair-like tails on the hind wings. One individual was collected on June 18, 1972 (C.D. Bird) and 2 males and a female on June 16, 1974 (C.D. Bird & P. Allen). Common in thickets and wooded areas in Alberta with a flight period from mid May to early August. The larval food plants usually are vetches.

*Glaucopsyche lygdamus couperi* - Silvery Blue.

This blue and be easily recognized because the undersides of its wings are light smoky brown. A row of white-circled black spots runs through the underside of each wing. Two individuals were seen on June 18, 1972 (C.D. Bird & P. Allen). Found across Canada, usually in wooded areas. The flight period in Alberta is from mid May to early August. The local larval food plants are Yellow Pea Vine and Tufted Vetch.

#### FAMILY NYMPHALIDAE

*Boloria freija freija* - Freija Fritillary.

The only small, pale orange fritillary on the wing in early spring. One individual was photographed in mid April (M. & D. McIvor). Widespread in forested areas in Alberta in proximity to its larval food plant, Common Bearberry. The flight period is from mid April to late June.

*Euphydryas anicia* - Anicia Checkerspot.

A medium sized butterfly that is checkered with areas of brick-red, black and yellow. Three individuals were collected on June 16, 1974 (C.D. Bird). Common in the mountains and the Cypress Hills in Alberta with a flight period from early June to mid August. The larval food plants are species of Beardtongue.

*Limenitis arthemis rubrofasciata* - White Admiral.

This fairly large butterfly is black with a broad white band across both fore and hind wings and rows of red and blue outside of the white band on the hind wings above. One individual was photographed on July 27, 1974 (J. & K. Cole) The larval food plant is usually Aspen and the species is generally common wherever it occurs. The flight period in Alberta is from early June to late July.

*Nymphalis antiopa antiopa* - Mourning Cloak.

A large maroon colored butterfly with yellow margins on its wings. It is one of the few local butterflies which overwinters in the adult stage. Such overwintered individuals were regularly seen in the area from April 14 to June 16, 1974 (J. & K. Cole, C.D. Bird). Adults of the year start appearing in late July and can be seen on warm days into December. The species is found generally across Canada. Its larvae are colonial and feed mainly on Willows, Aspen and Balsam Poplar. Was photographed mid September, 1975 (M. & D. McIvor)

*Nymphalis milberti* - Mourning Cloak.

Photographed mid September (M. & D. McIvor). Identified by C.D. Bird.

*Phyciodes campestris* - Field Crescentspot.

A fairly small butterfly that is rusty orange above with a pattern of irregular black bands. The hind wings are pale yellow with brown patches and rusty lines. Three specimens were collected on June 16, 1974 (C.D. Bird & P. Allen) It occurs from Quebec west to Alberta and south to Colorado. The larval food plants are asters. The flight period in Alberta is from early June to mid July.

#### FAMILY SATYRIDAE

*Erebia epipsodea* - Common Alpine.

A medium sized, dark brown butterfly. Each wing has at least three eye-spots in a band from top to bottom. Two individuals were seen on June 18, 1972 (C.D. Bird) and two males on June 16, 1974 (C.D. Bird & P. Allen). The species is found from Manitoba west to Alaska and south to New Mexico, usually in clearings and open areas. The food plants are grasses. In Alberta, the flight period is from late May to early August.

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## MAMMALS OF THE YAMNUSKA

No concerted effort was made to survey the mammals of the Yamnuska. However the following is an account of our observations.

Both Mule Deer and White-tailed Deer were seen on several occasions. In general the Mule Deer were seen near Reed and Crescent lakes in the mixed forest, while the White-tailed Deer were seen most often in the eastern end in the aspen jungles fanning out from Mt. Yamnuska.

Coyote sign was observed a number of times, and one animal was seen.

One Porcupine was seen on two occasions in the fall.

There was no sign of recent Beaver activity in the old Beaver Pond area at the head of the Great Swamp. The Loon Lake complex also appeared to be abandoned, although the dam had been recently built at Poplar Pond. This fall however it became apparent that beaver activity had re-commenced and one beaver was observed near the new lodge on the west shore of Poplar Pond. The dam was being re-enforced and there was considerable fresh tree felling activity. Beaver and Muskrats seen at the new Beaver

Pond.

Mountain Sheep tracks were seen in the col area, and Moose and Elk tracks were reported from the boggy areas of the lower valley. Although none of these animals were seen there is certainly ideal habitat for both species. We have had reports from other years of Lynx, Mountain Lion and Black Bear tracks, but again we have no confirmed sightings of these animals.

(Since the study observations of Muskrat, Elk, Bighorn Sheep, Black Bear, Bushy-tailed Wood Rat, Mountain Lion have been reported).

### REPTILES AND AMPHIBIANS

Observations were recorded for garter snakes, Long-toed Salamanders, Western Toad, Wood Frogs and Spotted Frogs.

### BIRDS OF THE YAMNUSKA

The main thrust of our observations in the Yamnuska was the flora. However, casual bird observations were recorded and a list is included in the appendix. It is not intended to represent a comprehensive record of the bird life present. It is simply an attempt to suggest the variety and interest created by the diverse habitats. Much more regular visitation and a greater degree of expertise than was available to the committee would be required to provide a full record of the birds here. Because of the limited nature of our data we will simply indicate the species seen and/or heard and supply whatever pertinent information is available.

## V CONCLUSION

Material in this report is lacking or scanty in certain fields, i.e. insects, non-vascular plants, climatology, with only casual treatment of the birds and mammals of the area. We have tried to indicate the diversity of habitat, and perhaps this will stimulate investigation in those fields which have been neglected.

"Yamnuska" - an area of contrasting habitats, a transition zone containing grassy meadow, forests and lakes, dry wind-swept hills, stony meadows, bogs and beaver dams, alpine screes. Climbers know the cliffs of the mountain's ridge, geologists have long been aware of its unique geological features, picnickers know some of the lakes. To know the complexity and beauty of its landscape in all seasons has taken some commitment, which in turn has brought rewards in the many delightful days that we have spent there, and a conviction that Yamnuska is something special to be protected and shared in its present natural state. We are fortunate still to have this place within the Bow Valley. Let us cherish it.



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## APPENDIX

### ANNOTATED LIST OF THE FLORA OF YAMNUSKA

The chief area of investigation in the Yamnuska was the vascular flora, this being the field in which we had primary interest and some degree of expertise. We had the professional assistance and moral support of Dr. C.D. Bird, Dept. of Biology, University of Calgary, and Mrs. Beryl Hallworth of the University of Calgary Herbarium. However, the field observers take full responsibility for errors or omissions. Our plant list has been arranged according to moss (Flora of Alberta), which served as our basic reference. (Revisions made according to Dr. Packers edition of the Flora of Alberta)

We were fortunate in having available "An Ecological Study of Bow Valley Park" (Wallis and Werschler) for reference and comparison. Although some areas of the Yamnuska are superficially similar to this neighbouring territory, there are other habitats which vary considerably or are absent in Bow Valley Park (i.e. alpine). As an indication of variation, those species not appearing in the Bow Valley Park annotated catalogue of flora but present in Yamnuska, have been marked with an asterisk\*. Further variation is evident in plants appearing in Bow Valley Park and not to date noted in Yamnuska, although they might very well appear if a more complete study were to be carried out here. A total of 306 species are listed, including 93 not listed for Bow Valley Park. (112 new species have been added to the study. They have been marked with two asterisks.\*\*)

Indication of abundance where available using the terms Common (C), Occasional (O), Locally Abundant (LA), Rare (R).

SELAGINELLACEAE - Little Club Moss Family.

*Selaginella densa* - Spike Moss. Found on dry rocky meadows. (C)

EQUISETACEAE - Horsetail Family

*Equisetum arvense* - Common Horsetail. Found in boggy, damp areas. (C)

\*\* *Equisetum fluviatile* -

*Equisetum laevigatum* - Horsetail. Found on stream banks (LA)

\* *Equisetum hyemale* - Scouring Rush. Moist banks, sandy shores. (LA)

\*\**Equisetum variegatum* -

OLYPODACEAE - Fern Family

\*\* *Botrychium lunaria* - Moonwort. Reported in the Biophysical Inventory.

\*\* *Botrychium virginianum* - Grape Fern.

\*\* *Cheilanthes feei* - Slender Lip Fern. Bluffs and Rock Fall

*Cystopteris fragilis* - Fragile Fen. Found on rocky ledges. Bluffs.

\*\* *Pellaea glabella* - Bluffs and rocky ledges.

\*\* *Woodsia oregana* - Oregon Woodsia. Bluffs and Rock Fall.

\*\* *Woodsia scopulina* - Mountain Woodsia. Bluffs and Rock Fall.

#### CUPRESSACEAE

*Juniperus communis* - Common or Ground Juniper. Dry coniferous or mixed forest. (C)

*Juniperus horizontalis* - Creeping Juniper. Dry open areas and mixed coniferous forest. (C)

#### PINACEAE - Pine Family

\* *Abies lasiocarpa* - Alpine Fir. In the Loder-Yam. Col area and adjacent ridges. (LA)

*Picea glauca* - White Spruce. Mt. Loder, mixed forest, stream banks, and scattered on steep mountain slopes. (C).

*Pinus contorta* - Lodgepole Pine. Open mixed forest throughout the area. (C)

\**Pinus flexilis* - Limber Pine. Mixed scattered forest at the western end. (LA)

*Pseudotsuga menziesii* - Douglas Fir. Mixed coniferous forest at the western end and mountain ridges and knobs. (C)

#### SPARGANIACEAE - Bur-reed Family

\**Sparganium minimum* - Slender Bur-reed. Fd. in shallow water.

#### JUNCAGINACEAE - Arrow-grass Family

*Triglochin maritima* - Arrow-grass. Fd. in marshes and bogs.

\*\**Triglochin palustris* - Slender Arrow-grass.

#### ALISMACEAE - Water Plantain Family

\**Sagittaria* sp. - Arrowhead. Wappatto. Fd. in deep pond water, Great Swamp.

#### GRAMINEAE - Grass Family

\*\**Agropyron dasystachyum* - Northern Wheat Grass.

\*\**Agropyron spicatum* - Bluebunch Wheat Grass.

*Agropyron trachycaulum* - Slender Wheat Grass.

\**Agropyron violaceum* - Wheat Grass. In gravel pits.

\*\**Agrostis scabra* - Hair or Tickle Grass. Reported in Bio. Inv.

\*\**Agrostis stolonifera* - Redtop. Reported in Bio. Inv.

\*\**Bromus inermis* - Awnless Brome. Fd. in gravel pits.

*Calamagrostis canadensis* - Marsh Reed Grass  
 \*\**Calamagrostis inexpansa* - Northern Reed Grass  
 \*\**Calamagrostis purpurascens* - Purple Reed Grass  
 \*\**Calamagrostis rubescens* - Pine Grass  
*Calamagrostis stricta* - Reed Grass  
 \*\**Danthonia parryi* - Parry Oat Grass. Reported in Bio. Inv.  
*Deschampsia caespitosa* - Tufted Hair-Grass  
*Elymus innovatus* - Hairy Wild Rye. Fd. in dry mixed forest. (C)  
*Festuca idahoensis* - Bluebunch Fescue. Reported in Bio. Inv.  
*Festuca ovina* - Sheep Fescue  
*Festuca scabrella* - Rough Fescue  
*Glyceria striata* - Fowl Manna Grass. Shallow water, boggy meadows.  
*Hierochloa odorata* - Sweet Grass. Open meadows.  
*Hordeum jubatum* - Foxtail Barley.  
*Koeleria macrantha* - June Grass. Rocky meadows (C)  
 \**Muhlenbergia richardsonis* - Mat Muhly Grass. Gravel pits.  
 \*\**Oryzopsis asperifolia* - Rice Grass  
 \**Phalaris arundinacea* - Reed Canary Grass.  
*Phleum pratense* - Timothy.  
 \**Poa alpina* - Alpine Bluegrass.  
 \*\**Poa cusickii* - Bluegrass.  
*Poa interior* - Bluegrass.  
 \**Poa juncifolia* - Alkali Bluegrass.  
 \*\**Poa nervosa* - Wheeler's Bluegrass.  
 \*\**Poa pratensis* - Kentucky Bluegrass.  
 \*\**Schizachne purpurascens* - False Melic. Reported in Bio. Inv.  
*Stipa columbiana* - Columbia Needle Grass.

#### CYPERACEAE - Sedge Family

\*\**Carex aenea* - Sedge. Reported in Bio. Inv.  
 \*\**Carex aquatilis* -  
 \*\**Carex atosquama* -  
 \**Carex aurea* - Golden Sedge. Fd. at Reed Lake  
 \*\**Carex capillaris* -  
 \*\**Carex concinna* -  
 \*\**Carex concinnoides* -  
 \*\**Carex crawei* -  
 \**Carex diandra* -  
 \*\**Carex ebernua* -  
 \*\**Carex filifolia* -  
 \*\**Carex gynocrates* - May Species Count 92  
 \*\* *Carex limosa* -

- \*\*Carex nardina -
- \*\*Carex petricosa -
- \*\*Carex pseudo-cyperus -
- \*\*Carex richardsonii - May Species Count 90
- \*Carex rossii -
- \*Carex rostrata - Fd. at Hidden Valley.
- \*Carex scirpoidea - Fd. at Twin Lake.
- \*\*Carex scopulorum -
- \*\*Carex stenophylla -
- \*\*Carex vaginata -
- \*\*Carex viridula -
- \*\*Carex xerantica -
- \*\*Eleocharis palustris - Spike Rush.
- \*\*Eleocharis quinqueflora -
- \*Eriophorum polystachion - Cotton Grass.
- \*Eriophorum viridi-carinatum.
- \*\*Kobresia simpliciuscula -
- \*\*Scirpus acutus - Great Bulrush.
- \*\*Scirpus validus - Common Great Bulrush.

#### JUNCACEAE - Rush Family

- Juncus alpinoarticulatus - Rush.
- Juncus balticus - Wire Rush
- Juncus nodosus - Rush. Fd. in the Great Swamp.

#### LILIACEAE - Lily Family

- \*\*Allium schoenoprasum - Wild Chives? (May Species Count 77)
- Allium cernuum - Nodding or Wild Onion. Dry open areas (O)
- Disporum hookeri - ?
- Disporum trachycarpum - Fairy Bells. Shaded areas, aspen forest (O)
- Lilium philadelphicum var. andinum - Red or Western Wood Lily. Aspen forests and open areas. (C)
- Smilacina racemosa var. amplexicaulis - False Solomon's-seal. Aspen forests and north facing slopes.(C)
- \*Smilacina stellata - Star-flowered Solomon's-seal. Varied habitat (C)
- \*Smilacina trifolia - Three-leaved Solomon's-seal. Swamp edges, under willows (O)
- Stenanthium occidentale - Bronze Bells. Aspen forests. (O)
- \*Streptopus amplexifolius - Twisted-stalk. Aspen forests. (O)
- \*Tofieldia glutinosa - Sticky Asphodel. Swampy areas (LA)
- Zygadenus elegans - Green Lily. White Camas, Showy Zygadene. Varied habitats (C)

*Zygadenus venenosus* var. *gramineus* - Death Camas. Crazy Weed. Dry open areas (C)  
IRIDACEAE - Iris Family

*Sisyrinchium montanum* - Blue-eyed Grass. Meadows and cliff north of the quarry (C)  
*Sisyrinchium septentrionale* - Mucronate Blue-eyed Grass. Damp meadows near Reed Lake & Meadow Lake (R)

#### ORCHIDACEAE - Orchid Family

\**Calypso bulbosa* - Calypso, Venus'-slipper. Spruce forest (R)  
\**Corallorhiza maculata* - Spotted Coral-root. Few colonies in aspen jungle and above bluff (O)  
*Corallorhiza striata* - Striped Coral Root. Aspen forest. Moist areas. (O)  
*Corallorhiza trifida* - Pale Coral Root. Shaded areas. Aspen woods. (C)  
*Cypripedium calceolus* - Yellow Lady's-slipper. Near lakes, stony meadows, open slopes. (C)  
*Cypripedium passerinum* - Sparrow's Egg Lady's-slipper. Shaded areas near streams. (O)  
\*\**Goodyera repens* - Rattlesnake Plantain. Dark spruce woods. (R)  
\**Habenaria dilatata* - Tall White Orchid. Swampy areas. (O)  
*Habenaria hyperborea* - Green Bog Orchid or Northern Orchid. Shaded moist areas. Near water. (O)  
*Habenaria obtusata* - Blunt-leaved Orchid. Lakeshores and edge of Great wamp.(O)  
\*\**Habenaria unalascensis* - Alaska Bog Orchid. Slender Bog Orchid. Near Twin Lakes in aspen woods (R). Also reported in Bio. Inv.

#### SALICACEAE - Willow Family

*Populus balsamifera* - Balsam Poplar. Balm of Gilead. Clones in damper areas of aspen forest. (O)  
*Populus tremuloides* - Aspen Poplar. Quaking Aspen. Major specie throughout the area, with dominant aspen fan (jungle) at the base of Yamnuska. (C)  
\*\**Salix arctica* - Artic Willow  
*Salix bebbiana* - Beaked Willow. Damp areas (C)  
\*\**Salix boothii* -  
\*\**Salix brachycarpa* - May Count.  
\*\**Salix candida* -  
\*\**Salix glauca* -  
\*\**Salix lucida* ssp. *lasiandra* -  
\*\**Salix myrtilifolia* -

- \*\*Salix pedicellaris -
- \*\*Salix planifolia -
- \*\*Salix pseudomonticola - May Count.
- \*\*Salix vestita - May Count.

#### BETULACEAE - Birch Family

- Alnus crispa - Green Alder. Base of Yamnuska and east shoulder. (LA)
- Betula glandulosa - Bog or Dwarf Birch. Damp areas. (LA)
- Betula pumila var. glandulifera. Dwarf Birch. Great Swamp area (LA)
- \*\*Betula neoalaskana - Alaska Birch. Reported in Bio. Inv.
- Betula occidentalis - Water or Black Birch. Boggy areas and dry open slopes. (LA)
- Betula papyrifera - White Paper Birch. Upper edge of aspen jungle. (0)

#### SANTALACEAE - Sandalwood Family

- Commandra umbellata var. pallida - Pale Commandra. Dry open areas and forest edge. (C)
- Geocaulon lividum - Bastard Toad-flax. (O)

#### LORANTHACEAE - Mistletoe Family

- Arceuthobium americanum - Dwarf Mistletoe. Grows on Lodgepole Pine. (0)

#### POLYGONACEAE - Buckwheat Family

- \*\*Eriogonum androsaceum - Umbrella Plant.
- \*\*Eriogonum flavum - Yellow Umbrella Plant. Scree slope below Yamnuska. (O)
- Polygonum amphibium var. stipulaceum - Water Smartweed. Lakeshores. (O)
- Polygonum bistortoides - Western Bistort. Swampy areas. (LA)
- Polygonum coccineum - Lady's-thumb. Water Smartweed. Some lakes. (0)
- Polygonum viviparum - Bistort.

#### CHENOPODIACEAE - Goosefoot Family

- \*Chenopodium capitatum - Strawberry Blite. Disturbed areas. (O) (May Species Count 76)
- Salsola kali - Russian Thistle. Disturbed areas. (C)

#### PORTULACACEAE - Purslane Family

- \*Claytonia lanceolata - Western Spring Beauty. Ground Nut. In the col (O)
- \*Claytonia megarrhiza - Alpine Spring Beauty. One plant in the col. (R)

## CARYOPHYLLACEAE - Pink Family

- Arenaria capillaris var. americana. Alpine Sandwort. Dry slopes. (O)
- \*\*Arenaria congesta var. lithophila - May Count
- Cerastium arvense - Field Chickweed. Star of Bethlehem. Mouse-eared Chickweed. Various habitat. (C)
- \*Cerastium beeringianum - Chickweed. (R)
- \*\*Cerastium vulgatum - Chickweed.
- \*\*Minuartia rubella - May Species Count (88) and other counts.
- Moehringia lateriflora - Sandwort. Aspen forest and open areas. (C)
- \*\*Silene noctiflora - Night-flowering Catchfly. Reported in Bio. Inv.
- \*\*Stellaria longifolia - Long-leaved Chickweed. Reported in Bio. Inv.
- Stellaria longipes - Long-stalked Chickweed. Mostly in aspen forest. (C)

## RANUNCULACEAE - Crowfoot Family

- Actaea rubra - Red and White Baneberry. China berries, Doll's eyes. Aspen forest. (O)
- \*Anemone lithophila - Alpine Anemone. Scree in the col (LA)
- Anemone multifida - Cut-leaved Anemone. Open areas. (C)
- Anemone parviflora - Few-flowered Anemone. Damp areas. (LA)
- Anemone patens - Prairie Crocus. Pasque Flower. Prairie Anemone. 'Gosling'. Ears of the Earth. Various habitat. (C)
- Aquilegia brevistyla - Blue Columbine. Colony on the shores of Twin Lakes. (LA)
- \*Aguilegia flavescens - Yellow Columbine. Aspen forest, canyons. (O)
- Clematis occidentalis - Purple or Blue Clematis. Virgin's-bower. Aspen and mixed forest. (C)
- Delphinium bicolor - Low Larkspur. Stony meadows (C)
- Delphinium glaucum - Tall Larkspur. Aspen forest and in scree below the Col. (C)
- \*\*Ranunculus abortivus - Small-flowered Crowfoot.
- \*Ranunculus acris - Tall Buttercup. Disturbed areas and aspen forest.(C)
- \*Ranunculus cardiophyllus - Heart-leaved Buttercup. Open areas and forest edge. (C)
- \*Ranunculus circinatus, var. subrigidus - White Water Crowfoot. Small ponds and lake edges. (O)
- Ranunculus cymbalaria - Seaside or Creeping Buttercup. Pond and lakeshores. (O)
- \*Ranunculus glaberrimus - Early Buttercup. Open areas. (C)
- Ranunculus reptans - Creeping Spearwort. Pond and lakeshores (O)
- \*\*Ranunculus rhomboideus - Prairie Buttercup. May Species Counts. (0)
- \*Ranunculus sceleratus - Cursed Crowfoot. Emergent in pond and lakes. (O)
- Thalictrum venulosum - Veiny Meadow Rue. Aspen forest. (C)
- \*\*Thalictrum occidentale - Western Meadow Rue. Reported in Bio. Inv.

FUMARIACEAE - Fumitory Family.

*Corydalis aurea* - Golden Corydalis. Disturbed areas. (O)

CRUCIFERAE - Mustard Family

- \**Arabis divaricarpa* - Purple Rock Cress. Dry open areas. (C)
- Arabis drummondii* - Rock Cress. Dry open areas. (C)
- Arabis hirsuta* - Hairy Rock Cress. Dry open areas. (C)
- \**Arabis holboellii*, var. *retrofracta* - Rock Cress. Dry open areas. (C)
- \**Arabis lyrata* - Lyre-leaved Rock Cress. Dry open areas. (C)
- \**Arabis nuttallii* - Rock Cress. Dry open areas. (C)
- \*\**Barbarea orthoceras* - Winter Cress. May Count.
- Barbarea vulgaris* - Yellow Rocket. Open disturbed areas. (C)
- Braya humilis* - Braya. Meadow near Reed Lake. (LA)
- Capsella bursa-pastoris* - Shepherd's-purse. Open disturbed areas. (C)
- \*\**Cardamine pensylvanica* - Bitter Cress.
- \**Coringia orientalis* - Hare's-ear Mustard. Open disturbed areas. (C)
- \*\**Descurainia pinnata* - Green Tansy Mustard. May Species Count 89, 92
- Descurainia richardsonii* - Grey Tansy Mustard. Disturbed areas. (R)
- \*\**Descurainia sophia* - Tansy Mustard. Flixweed.
- \**Diplotaxis muralis* - Sand Rocket. Fd. near lower swamp. (R)
- \**Draba aurea* - Yellow Whitlow-grass. Sunny rocky areas. (C)
- \*\**Draba cana* - White Draba. Open dry areas. (C)
- \*\**Draba lonchocarpa* - May Count.
- \**Draba nemorosa* - Whitlow Grass. Dry open area. (C)
- \*\* *Draba oligosperma* - Draba. May Species Counts. (O)
- \*\**Erucastrum gallicum* - Dog Mustard. May Count (R)
- \*\**Erysimum asperum* - Prairie Rocket. May Count (R)
- Erysimum cheiranthoides* - Wormseed Mustard. Quarry, gravel pits. (O)
- Erysimum inconspicuum* - Small-flowered Rocket. Dry areas. (O)
- \**Lepidium densiflorum* - Common Peppergrass.
- \**Physaria didymocarpa* - Double Bladderpod. Rocky location below col and dry rocky area in Hidden Lake and rocky ridge near West End Canyon. (O)
- \*\**Rorippa palustris* - Yellow Cress. (Species Count 81)?
- Sisymbrium altissimum* - Tumbling Mustard. Gravel pit, west end. (O)
- \**Smelowskia calycina*, var. *americana* - Smelowskia. Col. (R)
- Thlaspi arvense* - Stinkweed. Pennycress. Open disturbed area. (C)

DROSERACEAE - Sundew Family

\**Drosera linearis* - Sundew. Great Swamp. (C)



CRASSULACEAE - Orpine Family

*Sedum stenopetalum* - Stonecrop. Rocky open slopes. (C)

\**Tolmachevia integrifolia* - Rosy Sedum, Roseroot. Scree and rocky ledges. (O)

SAXIFRAGACEAE - Saxifrage Family

*Heuchera cylindrica* - Alum-root. Dry open slopes. (O)

*Mitella nuda* - Bishop's-cap or Mitrewort. Damp forest. (LA)

*Saxifraga aizoides* - Yellow Saxifrage. Edge of lakes and ponds. (LA)

*Saxifraga bronchialis* - Common or Spotted Saxifrage. Rocky ledges. (C)

\*\**Saxifraga cernua* - Nodding Saxifrage. Fd. in Buttress Canyon. (R)

\*\**Saxifraga oppositifolia* - Purple Saxifrage. West End Canyon. (R)

\*\**Tiarella unifoliata* - False Mitrewort. Foam Flower. Nancy-over-the-ground. Buttress Canyon. (R)

PARNASSIACEAE - Grass-of-Parnassus Family

\*\**Parnassia fimbriata* - Fringed Grass-of-Parnassus.

*Parnassia palustris* - Grass-of-Parnassus. Stream and lake banks. (O)

GROSSULARIACEAE - Currant or Gooseberry Family.

*Ribes hudsonianum* - Wild Black Currant. Dry woodlands. (O)

\*\**Ribes inerme* - Currant.

\*\**Ribes lacustre* - Bristly Black Currant. May Count.

\**Ribes oxyacanthoides* - Wild Gooseberry. Aspen forest. (C)

ROSACEAE - Rose Family

*Amelanchier alnifolia* - Saskatoon. Service-berry. June-berry. Aspen forest, bluff, hillside. (O)

\**Chamaerhodos erecta*, ssp. *nuttallii*. - Bunge. Disturbed areas. (O)

*Dryas drummondii* - Drummond's Dryad. Yellow Dryad. Gravelly locations. (C)

\**Dryas octopetala* - Mountain Avens, White Dryad. West end, col area, east shoulder. (C)

*Fragaria vesca* - Wild Strawberry. (O)

*Fragaria virginiana* - Wild Strawberry. (C)

*Geum aleppicum* - Yellow Avens. Aspen forest. (O)

\**Geum rivale* - Purple or Water Avens. Wet areas. (O)

*Geum triflorum* - Three-flowered Avens. Prairie Smoke. Old Man's Whiskers. Sleepy Head. Lies-on-his belly. Purple Avens. Long-plumed Avens. Dry open areas. (C)

*Potentilla anserina* - Silverweed. Dry Root. Shores of lakes and streams.(C)  
*Potentilla arguta* - White Cinquefoil. Disturbed sites, aspen forest. (O)  
*Potentilla concinna* - Early cinquefoil. Stony meadows. (C)  
*Potentilla diversifolia* - Cinquefoil. Alpine. Scree. (LA)  
*Potentilla fruticosa* - Shrubby Cinquefoil. Grassland, open woods. (C)  
*Potentilla gracilis* - Graceful Cinquefoil. Dry open areas. (O)  
 \**Potentilla hippiana* - Cinquefoil. Open slopes. (O)  
 \*\**Potentilla multisecta* - Cinquefoil. May Count.  
 \**Potentilla nivea* - Alpine Cinquefoil. Col and east shoulder. (LA)  
*Potentilla norvegica* - Rough Cinquefoil. Disturbed areas. (C)  
*Potentilla pensylvanica* - Pennsylvanian Cinquefoil. Dry open areas. (O)  
 \*\**Potentilla uniflora* - Cinquefoil. May Count.  
*Prunus pensylvanica* - Pin Cherry. Base of alluvial fan, West End Canyon, dry open ridge and bluff. (LA)  
*Prunus virginiana* - Choke Cherry. Aspen forest, open slopes, bluff. (C)  
 \**Rosa acicularis* - Prickly Rose. Aspen forest, open areas. (C)  
 \**Rosa woodsii* - Common Wild Rose. Aspen forest. (C)  
*Rubus arcticus* - Dwarf Raspberry. Damp spruce forest.(LA) *Rubus idaeus* - Wild Red Raspberry. Disturbed areas. (LA)  
*Rubus idaeus* - Wild Red Raspberry. Disturbed areas, edge of woodlands. (O)  
*Rubus pubescens* - Dewberry. Damp woods and thickets. (C)  
*Spiraea betulifolia* - White Meadowsweet. Spirea. Woodlands. (O)

#### LEGUMINOSAE - Pea Family

\**Astragalus aboriginum* - Indian Milk Vetch. Open areas. (C)  
 \*\**Astragalus alpinus* - Alpine Milk Vetch. May Species Count 89.  
 \**Astragalus bisulcatus* - Two-grooved Milk Vetch.  
 \**Astragalus canadensis* - Milk Vetch. Ravine in aspen wood. (R)  
 \*\**Astragalus dasyglottis* - Milk Vetch.  
 \**Astragalus eucosmus*- Milk Vetch.  
 \*\**Astragalus miser* - Timber Milk Vetch. May Count. (C)  
 \*\**Astragalus missouriensis* - Milk Vetch. May Species Count 80 & 86.  
*Astragalus striatus* - Milk Vetch.  
 \**Astragalus vexilliflexus* - Milk Vetch. Dry slopes, open woodland. (C)  
*Hedysarum alpinum* - Pink Sweet Vetch. Aspen woodland. (C)  
 \**Hedysarum boreale* - Purple Sweet Vetch. Stony meadows and dry open areas. (C)  
*Hedysarum sulphurescens* - Yellow Sweet Vetch. Woodland and meadow. (C)  
*Lathyrus ochroleucus* - Yellow Pea Vine. Aspen forest. (C)  
 \*\**Medicago lupulina* - Black Medick. Disturbed areas. (C)  
*Melilotus alba* - White Sweet Clover. Disturbed areas. (LA)  
*Melilotus officinalis* - Yellow Sweet Clover. Disturbed areas. (LA)  
 \*\**Oxytropis deflexa* - Reflexed Loco-weed.

Oxytropis monticola - Late Yellow Loco-weed. Open areas. (C)  
Oxytropis sericea var. spicata - Early Yellow Loco-weed. Buffalo Flower. Open areas. (C)  
Oxytropis splendens - Showy Loco-weed. Stony meadows. (O)  
\*Oxytropis viscida - Sticky or Viscid Loco-weed. Open disturbed areas. (O)  
Thermopsis rhombifolia - Golden Bean. Buffalo Bean. Prairie Pea. Stony meadows. (O)  
Trifolium repens - Dutch or White Clover. Disturbed areas. (LA)  
Vicia americana - Wild Vetch. Aspen woodland. (C)

#### GERANIACEAE - Geranium Family

Geranium richardsonii - White Geranium. Crane's-bill. Aspen forest. (C)  
Geranium viscosissimum - Sticky Purple Geranium. Richer meadows. (C)

#### LINACEAE - Flax Family

Linum lewisii - Wild Blue Flax. Stony meadows, edge of wood. (O)

#### POLYGALACEAE - Milkweed Family

Polygala senega - Seneca-root. Woodland edges. (R)

#### ACERACEAE - Maple Family

\*Acer glabrum - Mountain Maple. Canyons and gullies and upper edge of aspen fan. (O)

#### VIOLACEAE - Violet Family

Viola adunca - Early Blue Violet. Meadows, woodlands. (C)  
Viola canadensis - Western Canada Violet. Aspen woods. (C)  
Viola nephrophylla - Bog Violet. Swampy areas, stream banks. (O)  
\*\*Viola renifolia - Kidney-leaved Violet. Stream banks north of Meadow Lake. (R)

#### ELEAGNACEAE - Oleaster Family

Elaeagnus commutata - Silver-berry, Wolf Willow. Edge of aspen forest. Near bodies of water. (O)  
Shepherdia canadensis - Canadian Buffalo-berry. Bull-berry. Rabbit-berry. Open forest. (C)

#### ONAGRACEAE - Evening Primrose Family

Epilobium angustifolium - Fireweed. Great Willow-herb. Aspen forest. (C)  
\*Epilobium hornemannii - Small Willow Herb. Boggy areas. (O)

\*\**Epilobium latifolium* - Willow-herb.

*Oenothera biennis* - Yellow Evening Primrose. Few plants near Twin Lakes. (R)

HIPPURIDACEAE - Mare's-tail Family.

*Hippuris vulgaris* - Mare's-tail. Water's edge and at outlet of lower swamp. (C)

ARALIACEAE - Ginseng Family.

*Aralia nudicaulis* - Wild Sarsaparilla. Aspen forest. (O)

UMBELLIFERAE - Carrot Family

*Cicuta* sp. - Water Hemlock. Along creek at outlet of swamp. (R)

*Heracleum lanatum* - Cow Parsnip. Wild Rhubarb. Aspen forest. (C)

*Musineon divaricatum* - Musineon.

*Osmorhiza depauperata* - Sweet Cicely. Great Swamp area. (O) Properly identified in Bio. Inv.

*Sanicula marilandica* - Snake-root. Deep aspen woods.(C)

*Zizia aptera* - Heart-leaved Alexander. Meadow Parsnip. Stony meadows. (C)

CORNACEAE - Dogwood Family

*Cornus canadensis* - Bunchberry. Chicken-berry. Pigeon-berry. Damp coniferous woods. (O)

*Cornus stolonifera* - Red-osier Dogwood. Wet woodlands. (O)

PYROLACEAE - Wintergreen Family

\*\**Chimaphila umbellata* - Prince's Pine. Pipsissewa. Dark spruce woods in Buttress Canyon. (O)

*Moneses uniflora* - Single Delight. Single Beauty. One-flowered Wintergreen. Damp coniferous woods. (O)

*Orthilia secunda* - One-sided Wintergreen. Coniferous woods. (C)

*Pyrola asarifolia* -Pink Wintergreen. Moist woodland. (C)

\*\**Pyrola bracteata* - Large Wintergreen.

*Pyrola chlorantha* - Greenish-flowered Wintergreen. Coniferous woods. (C)

ERICACEAE - Heath Family

\*\**Arctostaphylos rubra* - Alpine Bearberry. West End Canyon. (R)

*Arctostaphylos uva-ursi* - Common Bearberry, Kinnikinnick. Stony meadows, hillsides. (C)

- \**Ledum groenlandicum* - Common Labrador Tea. Wet meadows. (O)
- \**Vaccinium caespitosum* - Dwarf Bilberry, Blueberry. Aspen-alder woodland below east shoulder. (LA)
- \*\**Vaccinium myrtillus* - Low Bilberry. Reported in Bio. Inv.
- Vaccinium vitis-idaea*, ssp. *minus* - Bog Cranberry. Cow-berry. Spruce forest near swamp. (R)

#### PRIMULACEAE - Primrose Family

- Androsace chamaejasme* - Sweet-flowered Androsace. Rock Jasmine. Stony meadows, open areas, wet and dry. (C)
- Androsace septentrionalis* - Fairy Candelabra. Stony meadows, open areas. (C)
- Dodecatheon conjugens* - Shooting Star. Fish Hook. bird Bill, Indian Chief. Dry open areas. (C)
- Dodecatheon pulchellum* - Shooting Star. Wet meadows. (O)

#### GENTIANACEAE - Gentian Family

- Gentiana affinis* - Prairie Gentian. East side of Big Swamp. (R)
- Gentianella amarella*, ssp. *acuta* - Felwort. Southwest edge of Great Swamp. (C)
- Gentianella crinata*, spp. *macounii* - Fringed Gentian. Two locations near Twin Lakes. (R)

#### MENYANTHACEAE - Buck-bean Family

- \**Menyanthes trifoliata* - Buck-bean. Great Swamp and central Beaver Pond area. (LA)

#### APOCYNACEAE - Dogbane Family

- Apocynum androsaemifolium* - Spreading Dogbane. Lower slopes of Mt. Yamnuska. (LA)

#### POLEMONIACEAE - Phlox Family

- Phlox hoodii* - Moss Phlox. Mayflower. Mother of Thousands. Stony meadows. (O)

#### HYDROPHYLLACEAE - Waterleaf Family

- \**Phacelia sericea* - Phacelia, Scorpion Weed. Rocky open slopes of Yamnuska and east shoulder. (O)

#### BORAGINACEAE - Borage Family

- Lappula occidentalis* (formally *redowskii*) - Western Blue-bur. Disturbed areas. (C)

Lappula squarrosa - Blue-bur, Beggar-tick. Disturbed area around quarry. (C)  
\*Lithospermum ruderales - Woolly Gromwell. Yellow Puccoon, Elk-food. Open aspen forest. (C)  
Mertensia paniculata - Tall Mertensia. Along stream draining Great Swamp. (R)

#### LABIATAE - Mint Family

Mentha arvensis - Wild Mint. Quick Smell. Edge of ponds. (O)  
\*Monarda fistulosa, var. menthaefolia - Wild Bergamot. Horse Mint. Open slopes, east ridge, open aspen forest at west end. (LA)  
Stachys palustris, ssp. pilosa - Hedge Nettle. Two damp locations. (R)

#### SCROPHULARIACEAE - Figwort Family

Castilleja miniata - Common Red Paint-brush. Varying habitat. (C)  
Castilleja lutescens - Common Yellow Paint-brush. Open areas. (O)  
\*\*Collinsia parviflora - Blue-eyed Mary. One site on The Bluff. (R)  
Linaria vulgaris - Toad-flax, Butter-and-eggs. Gravel pits. (LA)  
Orthocarpus luteus - Owl-clover. Stony meadows. (O)  
Pedicularis bracteosa - Western Lousewort. Wood Betony. Indian Warrior. Moist woodland slopes. (O)  
Pedicularis groenlandica - Elephant Head. Little Red Elephant. Stream banks and along Great Swamp. (O)  
Penstemon confertus - Yellow Beard-tongue. Stony meadow, open areas. (C)  
\*\*Penstemon ellipticus - Beard-tongue.  
\*\*Penstemon fruticosus - Penstemon. Buttress canyon. (O)  
\*Penstemon nitidus - Smooth Blue Beard-tongue. Open dry hillside along trail to east shoulder. (O)  
Rhinanthus minor - Yellow Rattle. Open woodland, meadows. (C)  
Veronica americana - American Brooklime. Stream bank, along Great Swamp. (O)

#### OROBANCHACEAE - Broom Rape Family

\*\*Orobanche fasciculata - Clustered Broom-rape.

#### LENTIBULARIACEAE - Bladderwort Family

Pinguicula vulgaris - Common Butterwort. Moss Violet. Swampy areas, outlet of Crescent Lake. (LA)  
Utricularia intermedia - Flat-leaved Bladderwort. Emergent. (O)

#### PLANTAGINACEAE - Plantain Family

*Plantago major* - Common Plantain. Whiteman's foot. Disturbed areas. (C)

#### RUBIACEAE - Madder Family

*Galium boreale* - Northern Bedstraw. Stony meadows, aspen forest. (C)

*Galium trifidum* - Small Bedstraw. Boggy areas. (O)

*Galium triflorum* - Sweet-scented Bedstraw. Mixed forest near highway. (O)

#### CAPRIFOLIACEAE - Honeysuckle Family

*Linna borealis*, ssp. *americana* - Twinflower. Spruce forest. (C)

*Lonicera dioica*, var. *glaucescens* - Twining, Bush, Fly or Twinberry Honeysuckle. Aspen woodland. (C)

*Lonicera involucrata* - Bracted Honeysuckle - Damp woodland. (O)

*Symphoricarpos albus* - Snowberry. Edge of woodland. (C)

*Symphoricarpos occidentalis* - Buckbrush, Wolfberry. Thickets. (C)

*Viburnum edule* - Low-bush Cranberry. Mooseberry. In and on edge of aspen woods. (C)

#### VALERIANACEAE - Valerian Family

*Valeriana dioica* ssp. *sylvatica* - Valerian. One site known of north side of Meadow Lake road. (R)

#### CAMPANULACEAE - Bluebell Family

\*\**Campanula lasiocarpa* - Alpine Harebell. Few seen on col (R)?

*Campanula rotundifolia* - Harebell. Bluebell. Lady's-thimble, Witch's-thimble. Dry open habitat, The Bluff. (C)

\*\**Campanula uniflora* - Alpine Harebell. One seen on north side of col. (R)

#### LOBELIACEAE - Lobelia Family

\*\**Lobelia kalmii* - Kalm's Lobelia.

#### COMPOSITAE - Composite Family

*Achillea millefolium*, ssp. *lanulosa* - Common Yarrow. Open, disturbed areas. (C)

*Agoseris glauca* var. *glauca* - False Dandelion. Stony meadows, woodland. (C)

*Anaphalis margaritacea* - Pearly Everlasting. Edge of forest. (O)

\*\**Antennaria alpina* - Pussy-toes. Everlasting.

\*\**Antennaria lanata* - Pussy-toes. Everlasting.

\*\**Antennaria neglecta* - Pussy-toes. Everlasting.

*Antennaria parvifolia* (formely *nitida*) - White Pussytoe. Stony meadows. (C)

*Antennaria pulcherrima* - Showy Everlasting. Boggy areas. (R)

\*\**Antennaria racemosa* -  
*Antennaria rosea* - Pink Pussytoe. Meadows. (C)  
 \*\**Antennaria umbrinella* -  
 \**Arnica angustifolia* ssp. *tomentosa* - Alpine Arnica. Open woodland, stony meadows. (C)  
*Arnica cordifolia* - Heart-leaved Arnica. Aspen and Pine woods, east ridge. (C)  
 \*\**Arnica lonchophylla* - Arnica. Stony meadows. (C)  
*Artemisia campestris* - Wormwood. Sagebrush. Stony meadows, disturbed areas. (C)  
*Artemisia frigida* - Pasture Sagewort or Pasture Sage. Base of slope. (C)  
 \*\**Artemisia ludoviciana* - Prairie Sagewort. Reported in Bio. Inv.  
 \*\**Artemisia michauxiana* - Sagebrush.  
 \**Aster alpinus* - Alpine Aster. Stony meadows. (C)  
 \**Aster borealis* - Northern Aster. Lower bog. (R)  
 \*\**Aster ciliolatus* - Lindley's Aster.  
*Aster conspicuus* - Showy Aster. Woodland. (C)  
 \**Aster ericoides* ssp. *pansus* - Tufted White Prairie Aster. Dry meadows. (R)  
*Aster laevis* - Smooth Aster. Dry meadows, edge of aspen woods. (O)  
 \**Aster sibiricus* - Aster. Stony meadows, scree. (C)  
*Cirsium arvense* - Creeping, Field or Canada Thistle. Disturbed areas. (C)  
 \*\**Cirsium drummondii* - Drummond's Thistle.  
 \**Cirsium hookerianum* - White Thistle. East end of lower swamp. (R)  
 \*\**Crepis nana* - Hawksbeard. Col and base of Mt. Yamnuska. (O)  
*Crepis tectorum* - Annual Hawksbeard. South end of Great Swamp. (R)  
*Crepis runcinata* - Hawksbeard. Great Swamp. (R)  
 \**Erigeron acris* - Tufted Fleabane. Open slopes. (C)  
 \*\**Erigeron caespitosus* - Tufted Flebane.  
 \**Erigeron compositus* - Cut-leaved Fleabane. Stony meadows, open areas. (C)  
*Erigeron glabellus* - Fleabane. Edge of aspen woods. (C)  
 \**Erigeron lonchophyllus* - Fleabane. Edge of ponds. (O)  
 \*\**Erigeron scotteri* - Cliff Brake. May Species Count 92. East Shoulder (*E. acris* variety)  
*Gaillardia aristata* - Gaillardia. Brown-eyed Susan. Open areas, aspen woods. (C)  
*Heterotheca* var. *villosa* - Golden Aster. Stony meadows. (C)  
 \**Hieracium umbellatum* - Canada or Narrow-leaved Hawkweed. Stream banks. (LA)  
*Matricaria matricarioides* - Pineapple-weed. Dog Fennel. Disturbed areas. (C)  
*Petasites sagittatus* - Arrow-leaved Coltsfoot. Wet areas. (LA)  
 \*\**Petasites palmatus* - Palmate-leaved Coltsfoot. Wet areas. (LA)  
*Senecia canus* - Prairie Groundsel. Stony meadows. (C)  
 \**Senecio indecorus* - Ragwort. Boggy areas. (O)  
 \**Senecio pauperculus* - Balsam Groundsel. Boggy places, low meadows. (O)  
*Senecio pseudoaureus* - Ragwort. Reed Lake. (O)  
 \**Senecio vulgaris* - Common Groundsel. Stony meadows. (C)  
*Solidago gigantea* - Giant Goldenrod. Stream banks. (O)  
*Solidago spathulata* - Mountain Goldenrod. Grassland, stony meadows. (C)



*Sonchus arvensis* - Perennial Sow Thistle. Disturbed site. (O)

*Taraxacum officinale* - Common Dandelion. Various habitat. (C)

\**Townsendia exscapa* (formally *sericea*) *Townsendia*. One site in meadow east of Reed Lake. (LA)

*Tragopogon dubius* - Goat's-beard. Oyster Plant. Gravel pits. (LA)

It is significant to note that up until 1992, 418 vascular plants have been reported in the Yamnuska. (The area is approximately 1,630 hectares). Around 213 species have been reported on the May Species Counts since 1976. The Biophysical Inventory done in Banff National Park in 1983 identified 844 vascular plants. The Flora of Alberta, second edition, revised by John G. Packer, lists 1775 vascular plants known to occur in Alberta.

## ANNOTATED LIST OF THE BIRDS OF YAMNUSKA

- Common Loon - The consistent presence of this species throughout the summer and for several years past indicates nesting on Loon Lake.
- Red-necked Grebe - Summer Resident. Seen at Loon Lake and Reed Lake with 6 young.
- Pied-billed Grebe - One migrant seen on the Beaver Pond in autumn.
- \*\*Great Blue Heron -
- \*\*Canada Goose -
- Mallard - summer resident. Nest found south of Duck Pond. Also seen at the Middle Beaver Pond.
- \*\*Wood Duck - One seen on Poplar Pond.
- \*\*Green-winged Teal -
- \*\*Blue-winged Teal -
- \*\*Cinnamon Teal -
- Ring-necked Duck - Migrant visitor. Seen in the spring at the Middle Beaverpond, and at Meadow Lake.
- Lesser Scaup - summer resident. Nesting adults and ducklings seen at both Reed Lake and Coyote Lake.
- Common Goldeneye -
- Barrow's Goldeneye - Summer resident. Common throughout the area. Seen at Meadow, Reed and Crescent Lakes and the old beaver pond.
- Bufflehead - Migrant spring visitor. Seen at Poplar Pond.
- Common Merganser - Observed at Poplar and Loon Lake in early summer.
- Hooded Merganser - Migrant spring visitor. Seen at the Middle Beaver Pond and East Beaver Pond.
- Sora Rail - One observed at the east end of the Great Swamp, in mid-summer.
- American Coot - Migrant spring visitor. Seen at Loon Lake.
- Killdeer - Summer resident. Common, probably nesting. Reported most often from Reed Lake and Twin Lakes.
- Greater Yellowlegs - Frequently seen at the east end of the Great Swamp. Nests found on the Stony Meadows.
- Solitary Sandpiper - Summer resident. Nest found in edge of small pond in meadows north of Quarry Road. Observed most often in spruce trees between Reed Lake and Middle Beaver Pond.
- Spotted Sandpiper - Fairly common. Seen at Reed, Twin Lakes and Middle Beaver Pond.
- \*\*Wilson's Phalarope -
- Common Snipe - Seen and heard flying on several occasions.
- \*\*California Gull -
- \*\*Ring-billed Gull -
- \*\*Black Tern -
- \*\*Golden Eagle -
- \*\*Bald Eagle -
- \*\*Northern Harrier -

\*\*Sharp-shinned Hawk -  
 \*\*Cooper's Hawk -  
 Northern Goshawk - One adult seen frequently. Nesting in aspen forest. Three young observed in nest.  
 \*\*Broad-winged Hawk - One pair nesting in aspen jungle south of Quarry Road. Two young seen in nest.  
 Red-tailed Hawk - Two seen flying, August.  
 \*\*Osprey -  
 \*\*American Kestrel -  
 \*\*Merlin -  
 Ruffed Grouse - Permanent resident. Common. Seen throughout the year, as late as Jan. 1975. One female with chicks reported.  
 \*\*Spruce Grouse -  
 \*\*Blue Grouse - One female with young seen on trail to East Shoulder.  
 Mourning Dove - Frequently sighted and heard, particularly in the Poplar Pond area.  
 \*\*Great Horned Owl -  
 \*\*Northern Saw-whet Owl -  
 Common Nighthawk - Frequently seen flying. One nest found with two eggs in Lodgepole Pine Forest.  
 Calliope Hummingbird - Summer resident. Presumed breeding in Hidden Valley and the Great Swamp area.  
 \*\*Rufous Hummingbird -  
 Belted Kingfisher - One observed on several occasions at Loon Lake.  
 Northern Flicker - Common throughout the area.  
 Yellow-bellied Sapsucker - Reported in the Middle Beaver Pond area.  
 \*\*Red-naped Sapsucker - Possibly all sapsuckers in the area are this specie and not yellow-bellied. Seen around East Beaver Pond.  
 Downy Woodpecker -  
 Hairy Woodpecker - Seen fairly often at Poplar Pond.  
 Three-toed Woodpecker - Observed in spring and early summer in the Middle Beaver Pond area at the head of the Great Swamp, and westward beyond Twin Lakes.  
 \*\*Pileated Woodpecker -  
 Eastern Kingbird - One of several flycatchers frequenting the Middle Beaver Pond.  
 Olive-sided Flycatcher - Common throughout the area.  
 Western Wood Peewee - Seen in the Middle Beaver Pond area.  
 \*\*Eastern Phoebe -  
 \*\*Hammond's Flycatcher -  
 Least Flycatcher - Common in aspen woods south of Quarry Road. Also reported in Hidden Valley.  
 \*\*Willow Flycatcher -  
 \*\*Western Flycatcher -  
 \*\*Tree Swallow -  
 Violet-green Swallow - Common over water bodies.

\*\*Bank Swallow -  
 \*\*Northern Rough-winged Swallow -  
 Cliff Swallow - One reported from the cliff band near the quarry.  
 \*\*Barn Swallow -  
 \*\*Blue Jay -  
 Gray Jay - Permanent resident. Common.  
 \*\*Clark's Nutcracker -  
 Black-billed Magpie - Permanent resident. Common.  
 American Crow - Infrequent visitor.  
 Common Raven - Infrequent visitor.  
 Black-capped Chickadee - Permanent resident. Common.  
 Mountain Chickadee - Permanent resident. Common  
 \*\*Boreal Chickadee -  
 \*\*Brown Creeper -  
 \*\*White-breasted Nuthatch  
 Red-breasted Nuthatch - Permanent resident. Common.  
 House Wren - One reported from the upper section of the Great Swamp.  
 \*\*Winter Wren -  
 \*\*Rock Wren - One pair presumed nesting summer 1992 in the sandstone quarry.  
 Golden-crowned Kinglet - Occasional sightings in coniferous forest.  
 Ruby-crowned Kinglet - Frequently heard in spring and early summer, particularly in spruce forests.  
 Mountain Bluebird - Common. Youngs with female seen flying near col.  
 Townsend's Solitaire - Common. Seen and heard on slopes of Yamnuska and Loder.  
 Swainson's Thrush -Common. Seen and heard in forest fringes near Middle Beaver Pond.  
 Nest found in aspen woods.  
 Hermit Thrush - Common in the spruce woods. Also found near col area.  
 American Robin - Summer resident. Nesting. Common.  
 \*\*Northern Shrike -  
 American Dipper - One seen in the Middle Beaver Pond. Jan. 1975.  
 Bohemian Waxwing - Large flocks often seen in spring, fall and winter, feeding mainly on Kinnikinnick.  
 Cedar Waxwing - Seen occasionally in summer.  
 \*\*European Starling -  
 \*\*Solitary Vireo -  
 Red-eyed Vireo - One seen and heard in aspen forest.  
 Warbling Vireo - Heard singing in aspen forest often.  
 \*\*Philadelphia Vireo -  
 Tennessee Warbler - Reported from the Great Swamp: one seen, and several heard.  
 \*\*Orange-crowned Warbler -  
 \*\*Nashville Warbler - One reported above The Bluff along trail to East Shoulder.  
 \*\*Black-and-White Warbler -  
 Yellow-rumped Warbler - Common throughout the area.

\*\*Townsend's Warbler -  
 Blackpoll Warbler - Observed once among willows and drowned trees of the Middle Beaver Pond.  
 \*\*Yellow Warbler -  
 \*\*McGillivray's Warbler - Seen in aspen woods (1992 May Count) below Quarry.  
 \*\*Canada Warbler -  
 Wilson's Warbler - One reported from the Great Swamp.  
 Ovenbird - Many heard in aspen jungle below Quarry. Presumed nesting.  
 \*\*Northern Waterthrush -  
 Common Yellowthroat - Seen often in thick willows near water bodies.  
 \*\*American Redstart -  
 Rose-breasted Grosbeak - One reported.  
 Vesper Sparrow - One reported from mixed woods at base of Yamnuska.  
 \*\*Savannah Sparrow -  
 \*\*Song Sparrow -  
 Chipping Sparrow - Common. Nesting.  
 Clay-coloured Sparrow - One seen in thick willows at the east end of Hidden Valley.  
 Dark-eyed Junco - Common. Nesting.  
 White-throated Sparrow - One heard in Hidden Valley. Few heard in area of East Beaver Pond (May Count 1992)  
 White-crowned Sparrow - Common in poplars, willows, especially near the Loon Lake area. Possibly nesting.  
 \*\*Fox Sparrow -  
 \*\*Lincoln's Sparrow -  
 Western Meadowlark - Heard once in spring in Reed Lake meadow. Also heard (May Count 1992) east of The Bluff.  
 Red-winged Blackbird - Common in areas of water bodies especially Duck Pond.  
 \*\*Rusty Blackbird -  
 Brown-headed Cowbird - Common. One Cowbird egg found in Chipping Sparrow nest near Great Swamp.  
 \*\*Northern Oriole -  
 \*\*Western Tanager -  
 Pine Siskin - Several reported from spruce forest areas.  
 \*\*American Goldfinch -  
 \*\*Red Crossbill -  
 White-winged Crossbill - Small flocks frequently seen in the tops of cone-laden spruce in fall and winter.  
 Pine Grosbeak - Often seen in forested areas.  
 \*\*Rosy Finch -  
 \*\*Purple Finch -  
 \*\*Cassin's Finch -  
 \*\*Evening Grosbeak -  
 \*\* Indicates species reported since the study.

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## YAMNUSKA NATURAL AREA STUDY COMMITTEE

Chairman: Robert N. Smith  
Mary Smith  
Keith Cole  
Joyce Cole  
M.D. McIvor  
Diane McIvor  
Aileen Harmon  
Dr. C.D. Bird  
Gordon Kerr

All are members of the Bow Valley Naturalists except Dr. Bird and Gordon Kerr, who are associated with the Calgary Field Naturalists' Society.

Revised by Diane McIvor, (~2007)